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# FORESTS

JULY 1949

50 CENTS



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# AMERICAN FORESTS

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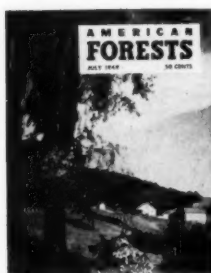
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### THE COVER

With the July issue of AMERICAN FORESTS devoted to striking examples of wise land use in widely-separated sections of the country, John Kabel's photo of a typical Vermont farm seemed to provide the right cover touch. Millions of people living on farms just like this one have a wonderful opportunity, in this era of agricultural enlightenment, to increase the productivity of their land. For specific examples of what several communities have already accomplished, your attention is invited to "Getting On the Contour" starting on page 6, "Forestry By the People" on page 12 and "The Miracle of Muskingum" on page 18.

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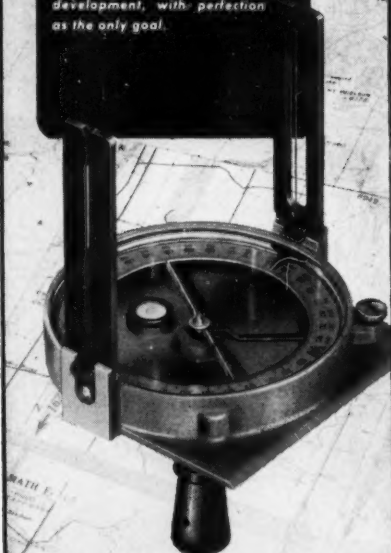


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## LETTERS TO THE EDITOR

### Home-Grown Seed

John B. Woods' article, "Where Will We Get Our Seed?," in your May issue, does notable service in calling attention to the countrywide seed shortage. The situation is indeed acute. It is not confined to the United States, as is shown by such serious studies as Bertil Lindquist's "Genetics in Swedish Forestry Practice" (Chronica Botanica Company, Waltham, Massachusetts).

Mr. Woods' suggestion concerning a nationwide "Seed Institute" is also excellent. Such an institute might develop most quickly and soundly through the formation and later amalgamation of regional clearing houses for seed crop data, seed standards and inspection.

A point missing from Mr. Woods' article, however, is the importance of using local geographic races of tree seed, in preference to transferring seed from locality to locality, region to region, or country to country. Distinct geographic races have been demonstrated in such frequently planted species as Douglasfir and loblolly, ponderosa and red pines, and are also known or suspected in several other American species mentioned in Mr. Woods' article.

The existence of these geographic races led the U. S. Department of Agriculture, in 1939, to formulate a forest tree seed policy, subscribed to by the Soil Conservation and Forest Services and strongly urged upon the states cooperating under Section 4 of the Clarke-McNary Act. This policy specifies the use wherever possible of seed collected within 100 miles of the planting site and within 1,000 feet of its elevation, and the strict recording of the seed source whenever expediency requires the use of seed from more distant but still climatically similar localities.

That the Department of Agriculture's seed policy is not far-fetched or impractical is shown by a series of loblolly pine plantations, now twenty-two years old, in Louisiana. In these plantations stock from seed collected 350 to 450 miles from the planting site has produced forty to fifty-six percent less pulpwood per acre than stock from seed collected within fifty miles of the site.

Philip C. Wakeley

New Orleans, Louisiana

### Mr. Woods Explains

(Mr. Woods dropped by the office the day Mr. Wakeley's letter was received, and dictated the following reply.—Editor.)

Mr. Wakeley's point about the importance of using local geographic races of seed is well taken, and of course I recognize it. However, there were several reasons which appeared sound to me for not mentioning it in my article. One was the space limitation — because in a popular piece such as that considerable explanation would have been necessary.

From my own viewpoint of desiring to make a few suggestions which might be helpful in putting under way provision for adequate supplies, the interposition of such limiting qualifications would have been illogical. In other words, our great problem today is to arrange cone collection agencies in all the places where good forests grow, since supplies are needed in all these places as well as in some other places. It is then more important to get the sources set up

than to consider the fact that federal and many state foresters desire local seed for local planting. The bare fact is that today when they cannot get local seed they buy it from other places. And, of course, foresters do not quibble about local seed, although they do ask for site certification, which we began giving them when I was forester for the Long-Bell Lumber Company, twenty years ago.

When we get collection facilities so set up that every locality with a cone crop will yield its full quota, then we can carry out these proper insistences upon local climate race stock and nothing else.

John B. Woods

Danville, Vermont

### Keeping Up With the Champs

Why would it not be a good idea to make note in the magazine of any current additions to your tree champions (Big Tree Project), indicating the size, location and sponsor? In this way you would keep your readers who are interested in the big tree project abreast at all times. For myself, I am so much interested that on all my tramps I am ever on the alert to discover a large specimen of any type of tree. In this manner I have found three which I recorded with you.

Judge Ernest H. Van Fossan

Washington, D. C.

### The Beauty of Trees

I have always been interested in trees and an ardent admirer of their beauty. Since a trip across the Plains States to Yellowstone National Park, I find myself more than ever concerned with efforts being made in conservation, particularly in reforestation. So I am only too glad to take advantage of the opportunity of becoming a member of your association.

Majorie L. Myers

Elkhart, Indiana

### Thank You, Sir

We would like to congratulate you on the extreme readability of *American Forests* and the timeliness of the articles. We have gained much in both general and specific knowledge, but more important, the value of American forests to our national economy has been seriously impressed upon us.

Louis Bober

Rapid City, S. D.

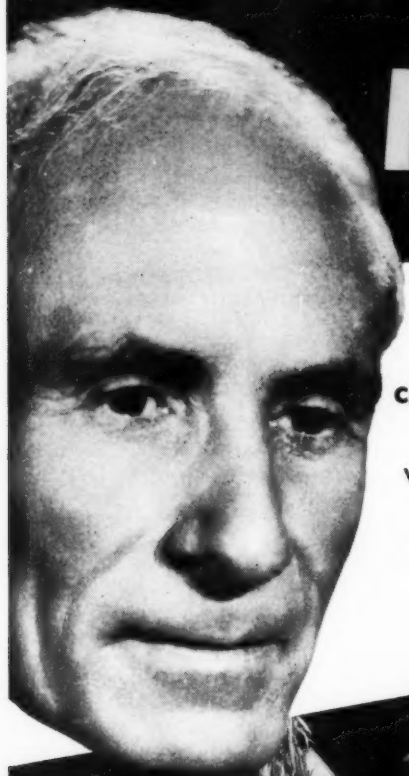
### On Avoiding Planted Wastes

Erle Kauffman's story, "Planting America," in your issue of March 1949 is a very good story. I enjoyed reading it. I feel, however, that the story over-emphasizes the importance of planting in a national forestry program. The author does say that tree planting is not the most vital problem and that better management of existing forests has a higher priority. It would seem to me that our high-powered stories would be more appropriate on the problem of managing existing forests rather than to get people all excited about the reforestation of 73 million acres of non-productive land. We have some four million owners in con-

(Turn to page 36)



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## WASHINGTON LOOKOUT

By A. G. HALL

**Looking toward termination** of its first session by July 31, the 81st Congress is concentrating on the administration's legislative program. Chances are that many forestry and related bills will be lost in the press of business, particularly those which have not already been reported by committees and passed by at least one chamber.

**There is still** a chance, and a mighty good one, that H.R. 2296, to enlarge federal authorizations for cooperative work with the states, will be enacted into law before the close of the session. It has passed the House, and a subcommittee of the Senate Committee on Forestry and Agriculture has held hearings on it. Although the testimony was not one hundred percent in support of the measure, it is confidently expected that the full committee will report the bill favorably. Opposition by the lumber industry to the increased federal spending and the augmented federal influence on state programs was strong but ineffective. Consulting foresters objected to increased public activity in the farm forestry program—a field in which they believe private enterprise is beginning to show real results—and the nurserymen pointed out that commercial nurseries could and would supply trees for reforestation at costs less than those now resulting from the federal-state cooperative program.

However, all witnesses, both pro and con, favored the principles of cooperative action in meeting the problems of fire control, reforestation and better management of small woodlands. It is believed that the committee will be more impressed with the principles than with the details.

**In testifying** for The American Forestry Association, S. L. Frost, executive director, proposed a provision in the bill for a "forestry advisory council" to help guide the Clarke-McNary law into real cooperative action by bringing together the considered opinion of public and private foresters, industries, agencies and individuals affected by the measures. While this received a rather lukewarm reception at the hearings, it appears to be one way to capitalize on

the large "area of agreement" found among the divergent interests in the forest conservation problem.

**An expanded program** of reforestation and revegetation of national forest lands appears to be well on its way to the statute books. S.J. Resolution 53 would step up funds for these purposes to \$13,000,000 by 1955. Having passed the Senate on April 11, the bill was reported favorably, without amendment by the House Committee on Agriculture, on June 6.

**Interstate cooperation** in forest fire control is receiving the sanction of the federal government with the passage of S. 1659 by the Senate and the approval by the House Committee on Agriculture of a companion bill, H.R. 4335. The bill would grant approval to an interstate compact of the New England States for mutual aid in combating forest fires.

**The opening of Alaska** to homesteading by war veterans has again been proposed by Congressman Lemke of North Dakota. His bill, H.R. 4059, is similar to that introduced in the 80th Congress, except that it excludes from homesteading those areas of national forest in which timber sales contracts are already in effect. Thus the bill would make available for homesteading most of the national forest land in the territory. Apparently it is following the same course of action as did the similar bill last year. It has been approved by the House Committee on Public Lands, unanimously, with none of the members committed to vote for its passage on the floor of the House. Last year the bill was passed on a consent calendar, but failed of consideration in the Senate. Designed ostensibly to aid war veterans and the Territory of Alaska, as pointed out in the article "Timber Homestead in Alaska," in the November 1947 issue of *American Forests*, the bill could affect only a small portion of the veterans, and most of them would find it financially impossible to manage the remote forest acreage available to them. On the other hand, it would upset federal programs for orderly settlement and development of Alaska's resources.

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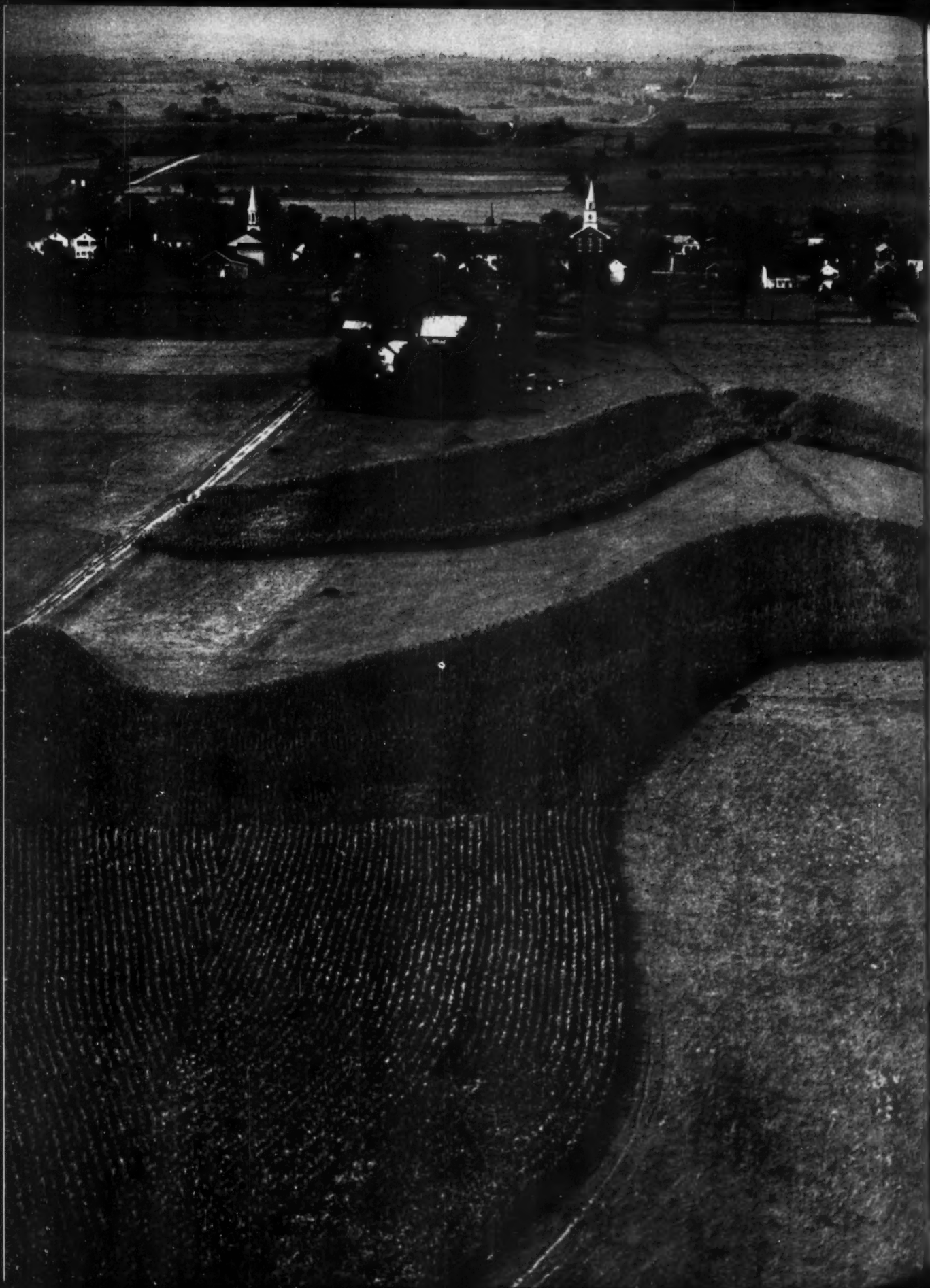
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# Getting on the Contour

In Maryland's rolling hill country, an *American Forests* editor finds a typically successful soil conservation district—one of 2,000 that now make conservation practices possible for four million farms

By NORT BASER

LARRY Mac Phail used to have a flair for flare-ups which lured fans into baseball parks when he was general manager of the Brooklyn Dodgers and the New York Yankees. He wouldn't stand for "deadwood" on his teams, and he couldn't bear to see barren gaps among the seats designed for paying customers. "We've got to keep those seats filled," he used to say. "We've got to get on the ball."

But those are bygone days for the colorful and energetic MacPhail. He has retired from the baseball scene, "settled down" on his 500-acre farm near Bel Air, Harford County, Maryland. But he hasn't settled down the way most of us dream of doing some day. He has merely transferred his boundless energy and enthusiasm to his new role of gentleman farmer. And he has a new by-word: "We've got to get on the contour." And he says it as if it were his own idea.

But this isn't the story of Larry MacPhail's life on the farm. It's the story of a soil conservation district and its approach to the land use problem—how farmers and soil experts are working shoulder to shoulder to obtain permanent maximum productivity of the land, according to its capacity and needs. Specifically, it's the story of the Harford County Soil Conservation District, one of the first to be established in this country. Nestling in northeastern Maryland between the Pennsylvania border and Chesapeake Bay, it is typical of the more than 2,100 soil conservation districts which now blanket the nation, making good land use practices, in the democratic manner, available to four and a half million farms.

Thus the Harford district's story is essentially the same as that of any other district in the nation—differ-

ing only in the names of the people and in the character of some of its strictly local problems.

The experts will tell you Harford County's productive topsoil was originally nine to ten inches deep. Now it averages only five to six inches. In some hilly spots it has disappeared entirely. Nor will they fail to remind you that it took nature from 500 to 800 years to build one inch of that precious soil!

To technicians, soils of the Harford district are known as Chester, Manor, Montalto, Elkton, Tuxedo and others closely related. To the layman, these mean fertile crop land, thick pasture and fast-growing woodlots. Until abuses began to take a serious toll in sheet and gully erosion, it was assumed conditions would always be rosy. Perhaps they will, for now soil conservationists are helping farmers protect their investment in land and buildings—an investment which in 1940 was valued at more than \$17,000,000.

Larry MacPhail lives in the Harford district. He isn't a typical disciple of soil conservation, for he does things on too big a scale. Actually, "getting on the contour" is little more than a symbol in his case. He prefers to raise some 250 head of fine angus cattle and breed horses for his racing stables. The horses are his latest venture, causing Paul Capron, editor of the *Harford County Gazette*, to observe, "If those angus can't run, I'll bet they won't be

around long." They will, though.

Such an undertaking as MacPhail's calls for plenty of fertile pasture, miles of fencing and an expansive outlay of barns and stables. In character, he chose to buy a run-down farm and make it over the way he wanted it. Back in 1941 he bought the Glen Angus Farm, as he calls it, and it has turned out to be a shrewd choice. About 200 of his 500 acres are well timbered, so when he got around to fixing up his barns and building new ones he took the advice of his capable farm manager, Jack Price, and had the lumber cut from his own trees. The timber was cut selectively, so there's plenty more for future building.

MacPhail is highly appreciative of the woodlot on his farm. "It has saved me plenty of money in fixing up my buildings at a time when lumber was high and sometimes hard to get at any price," he claims.

Yes, MacPhail talks like a farmer, and he's considered a pretty smart operator, even though his buildings and ways of doing things remind one of Yankee Stadium. He is a good





Photo by Strohmeier & Carpenter, Inc.

From these woods on Larry MacPhail's Glen Angus farm came the lumber to fence pastures and to repair buildings

citizen of Harford County because he has shown in eight years how a neglected farm can be made productive again through proper corrective measures, care and use.

But the Harford soil conservation program was designed primarily for the smaller dirt farmer. Thus, while applauding MacPhail's achievements with his farm, it is perhaps even more encouraging to soil conservation men to know that Charles Hiob put twenty acres of his general farm near Aberdeen into strip cropping this spring and that he's changing fences to get eroded land into soil holding pasture; that Paul Choate of Poplar Grove has blasted two drainage ditches so that his dairy cattle can have better pasture. Or that on sloping fields of the Charles Gladden farm in the northern part of the county are strips of varying crops in widths of eighty feet each, all planted on the contour in geometric pattern. Two diversion terraces have been built within the past five years to protect the soil from washing down the hills.

A few miles distant is the farm of Wilson Heaps, president of the State Farm Bureau, where similar practices have been in effect since 1943.

Here, too, is a natural looking pond, well stocked with fish and ducks. Driving east toward Hickory, one sees where an ugly gully which almost ruined a narrow ten-acre field on the Newton Heaps place is being corrected by building a diversion terrace and re-planning the field for strip cropping.

Such examples are legion in the area, ranging from United States Senator Millard E. Tydings' Oakington homestead down near the shores of Chesapeake Bay, to the Arthur Slade place which has been devoted to strip crops since 1941. The list includes such established settlers as Clifford Holloway, who has farmed his land with everything from a yoke of oxen to teams and tractors, and N. Lloyd Weaver, a talented artist and stonemason as well as a farmer.

In fact, one Harford County farm in every four has a soil conservation plan of one kind or another, the total area amounting to roughly 69,500 acres, one-third of the district area. This new pattern of land use has snowballed chiefly on its own merit since it was first introduced in the county ten years ago with the establishment of a demonstration area near Black Horse. The demonstrations

were under the supervision of the Soil Conservation Service with the concurrence of the Maryland State Advisory Committee.

Farmers in the area began to see that plowing of straight furrows up and down hill was the cause of their erosion problems. They observed that those same sloping fields could be plowed on the level so that the curved furrows would serve as a trough to catch rainfall and allow much of it to soak into the ground. They saw the value of diversion channels on the steeper slopes to check wasteful runoff of soil and water.

The advantages of strip cropping were also introduced. Contour strips of close-growing plants, like ladino clover or grass, between alternate strips of clean-tilled row crops proved a wonderful antidote for erosion. The use of cover crops, crop rotation, fertilizer and lime was made more popular through these demonstrations. For the first time some farmers realized how they could make productive pasture out of wet lands by proper drainage methods.

By the summer of 1939, techniques had so improved and farmer interest had so increased that both Harford and neighboring Baltimore coun-



ties were organized into the Gunpowder Falls-Deer Creek District. This spurred even greater activity, resulted in more requests for assistance than the limited technical staff assigned to the area could handle.

Then in May 1944, a referendum of landowners dictated the dividing of Harford and Baltimore counties into separate districts. This meant more technical assistance, and besides it was felt that a group of supervisors representing only their own county would be in a better position to understand local problems and to obtain more support from county governments. Thus, in the past four years, the number of farm plans in the Harford district has grown from 200 plus to more than 500.

Key to this soil-saving program's popularity are the supervisors, five in number. All are active farmers, three being elected by the men they represent and two being appointed by the State Soil Conservation Committee. Current electees are W. V. St. Clair, chairman, of Jarrettsville, Dave G. Harry, Jr., treasurer, of Pylesville, and Worley Umbarger of Aberdeen. C. M. Merriman of Jarrettsville, and John Bay of Pylesville, are the appointed members. County Agent H. M. (Hap) Carroll, though not a board member, serves as secretary.

It is the responsibility of the supervisors to give the landowners they represent the maximum control over the program. They guide the policies, meet once a month to assign priority to requests for assistance on various farms and to help thrash out any other problems which may arise. They also control expenditures of district funds allocated by the state, plus monies earned from assessments to farmers using district-assigned equipment to install drainage ditches and diversion terraces. Early this spring the supervisors bought a second-hand jeep and plow which has come in mighty handy in helping lay out contour lines for spring plowing.

Local technicians in the employ of the U. S. Soil Conservation Service take over from there. Occasionally they help the supervisors recommend revisions in farm plans, but they never set foot on a man's farm unless requested to do so. They want the program to sell itself—which it's doing.

Headquarters for the Soil Conservation Service in the Harford District is at Bel Air, county seat. Jim Seaman is in charge. He has earned the confidence of the farmers and townspeople who recognize the fine job he is doing and like his easy, friendly air of cooperation. His right-hand

man is John Smith, and he has two other assistants during the busy warmer months. Whenever Seaman and his staff need a helping hand, they call on Fred Bull, immediate superior at Towson in neighboring Baltimore County.

Earlier this year Seaman received a request to lay out a conservation plan on Kenneth Fender's 156-acre farm west of Hickory. First he had the soil surveyed to learn its present condition, how much erosion existed

and its degree of slope. Then he drew up a land capability map, all to scale and in color. Armed with this, he visited the Fender farm. He learned that Fender had sixty-eight head of dairy cattle and ten heifers, that he wanted better pasture and more corn.

The two of them then walked together over every acre of the farm, discussing what each field was used for and what the map indicated the best use should be. Fender agreed contour strip cropping would help



Photo by John Smith, SCS  
An ugly gully had rendered the above ten-acre field almost useless before Soil Conservation experts showed its owner, Newton Heaps, how it could be corrected

Below is the same field after a diversion terrace was built halfway down the hill. Alternate strips sowed to corn and small grain will hold soil in place

Photo by Hermann Postlethwaite, SCS



him in a couple of the hilly fields and that another would be better suited to pasture. He saw he would have to change several of his fences and put in some drainage tile in one low field.

When all the details were worked out, Seaman wrote them into a plan for Fender to sign. The contour lines were tentatively outlined in April, but they won't be layed out until after hay harvest. When they have been established, each plowed furrow will be at right angles to the slope so that rain will no longer wash the topsoil away but will sink in around the roots of crops. New fence lines won't be established until the present fences need repair.

That's how the program works. Fender's problem is typical of most farms in the district—but sometimes Seaman finds conditions much worse and has to recommend more drastic measures of control. Too often farmers don't become alarmed until they notice ugly gullies eating away their fields. They fail to realize that sheet erosion can cause great damage if not halted by strip cropping, diversion terraces, cover crops, fertilization, crop rotation, or other measures.

In many cases Seaman finds it profitable to seek the aid of other agencies. The University of Maryland Extension Service or County



Agent Carroll are always ready to help with farm plans for erosion control. The State Soil Conservation Committee will advise on points of law and cooperation. Or if woodlot improvement is needed, the State Forest Service will lend a hand. These technicians stand ready to advise the farmer. After that, it's up to him.

Usually the farmer discovers he

must spend a considerable amount of effort and some money over a period of several years to get his farm back into the maximum productivity of which it is capable. But sometimes he is agreeably surprised—especially if he has a healthy woodlot.

For instance, Joseph Zinkham has twenty-five acres of timber on his 160-acre farm near Jarrettsville. In

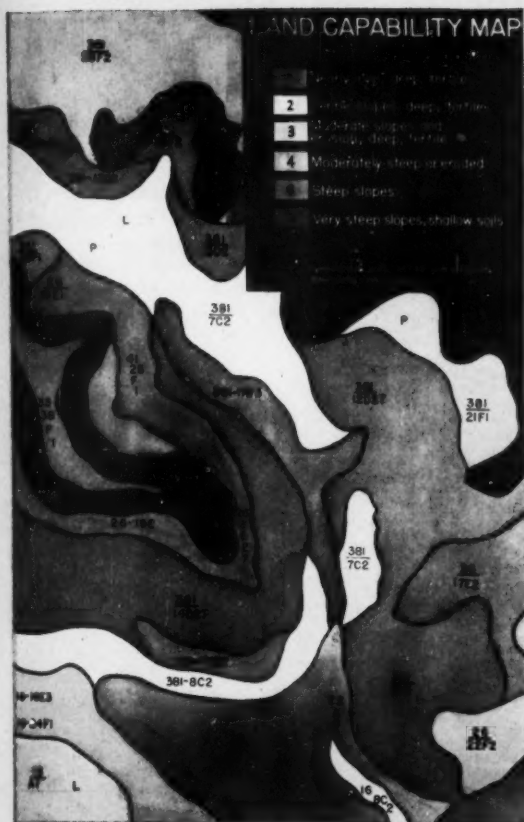


**1** First step in making a new farm plan is to study the present use of the land and learn what a farmer would like to grow.

the fall of 1947 he asked Forester Bill Johnson to mark his woodlot. Johnson looked over the tract, logged three times in the past seventy years, and marked more than 100 thousand feet for cutting. The sale brought Zinkham \$1,900 and still left him a good stand for future harvests.

Only last summer a long untouched farm woodlot near Forest Hill prompted Leonard Pieper to make one of those rare deals which would have caused even his Yankee forbears to turn green with envy. An absentee owner, who apparently did not realize the worth of his woodland, sold Pieper the farm and buildings for \$8,500. Pieper had Forester Johnson mark twenty-six acres of the timber for selective cutting, and they consulted the Soil Conservation Service on the advisability of clear cutting another four acres for use as pasture.

Timber from those four clear-cut acres, plus the other twenty-six, conservatively marked to leave a good stand for the future, brought Pieper \$5,700—set him up with a potentially valuable farm for a net investment



**2** Then from soil samples the land is plotted according to its capabilities. Symbols indicate slope, condition of the soil



**3** Finally, after the farmer has agreed to all recommendations, a new plan is made, showing land use, contours, fence lines

of slightly less than \$3,000.

More often a woodlot helps provide the lumber for upkeep of farm buildings—as in the case of Larry MacPhail—or nets a modest sale of timber to offset soil improvements. Farmers without such windfalls must make more of a sacrifice, though actually the cost of putting in a farm conservation plan is nominal. A farmer can put in the recommended contours and strip cropping himself during slack periods. Changing fences isn't usually advised until present lines need repair. Of course, measures such as correcting deep gullies, putting in drainage tile or buying large quantities of lime and fertilizer are more costly.

What does the farmer gain by making all these improvements? Let James Daugherty, who farms near Constitution on the Pennsylvania line, tell you: "My yields have increased forty to fifty percent on some land that was formerly badly eroded. Now all my cropland is producing equally well because the fertilizer, seed and manure stay on the slopes instead of washing off."

Paul Givens of Fallston, who has completed the eighty-two-acre farm plan he began in 1945, says, "Now that I am farming in contour strips all the gullies are healed over and my grass waterways are gradually leveling up. The water that comes from my fields is now clear. My yields have increased by one-fourth on the average—and I am saving time and effort through increased efficiency of equipment."

Kenneth Gross, who farms 220 acres near Madonna, says that ten years ago he kept only eighteen cows, ten heifers, a team and a few pigs and chickens. Now he has twenty-eight cows, fifteen to twenty heifers and fifty hogs. He fills two silos now instead of one, and last year he sold eight tons of hay and ten tons of straw. On the Wilson Heaps farm near Pylesville, son Henry points out, "In a twenty-acre field, we are now farming one additional acre that was taken up with gullies before we started strip cropping."

N. Lloyd Weaver, the farmer whose paintings won second prize in a state-wide contest last year, sums

it up with, "I think the curved rows of contour strips make a farm and the countryside in general so much more beautiful that farmers take more pride in their work and want to do a better job of farming. I know it has made a better farmer of me." Besides getting fifty percent more corn from his hillsides, he notes that springs which used to go dry in summer now have a small trickle all summer long.

That's why more farms in the Harford district are taking on the new look. Each convert brings the overall conservation pattern nearer to completion. Not that the job is anywhere finished. Best estimates indicate it will take at least ten years to attain blanket participation, even with 100 percent cooperation, on the 2,269 farms which envelop 206,091 acres.

There's no doubt that the conservation movement is progressing at a pace fast enough to point a definite pattern of land use for the future. That other districts are making strides toward the same end gives great hope for the future.



# Forestry By the People



California's team for better forestry—seated, left to right, Forestry Board Member Hardison, General Hannum, director of Natural Resources, Chairman of Board Rosecrans, State Forester Nelson and Board Member Prendergast. Standing, Dean Baker of University of California Forestry School, and Board Members Spencer and Walker. Board Members Robie and Reynolds are not shown



**By W. S. ROSECRANS**

*Chairman, California State Board  
of Forestry*

**There is nothing bureaucratic about California's new approach to its forestry problems—which may well be the reason the State has made more progress since 1944 than in the preceding quarter century.**

**C**ALIFORNIANS are proud of the forests in their state—of the ancient giant sequoias in the Sierra, of the towering redwoods along the coast, of the gnarled Monterey cypresses and of the stately pines. Californians are proud of the strides they have made in forestry. Particularly during the past five years, they feel, have results been achieved which place them in the forefront of state forestry development. Represented by a competent and public-spirited State Board of Forestry whose members are subject to no political pressure, they are convinced that they are on a firm footing toward insuring their forest, watershed and grazing resources for the future.

That this may not be discounted as exaggeration, a vice occasionally associated with Californians, let us take a brief look at the record. The State Board of Forestry has been reorganized and its duties clearly de-

fined. The State Division of Forestry has been better integrated and developed into a well balanced forestry organization. A new and highly competent state forester has been placed in charge of California's forest work. Most of the state's laws affecting forestry have been completely rewritten. A cooperative survey of the timber resources of the state has been initiated. Protection of its watershed and forest lands has been intensified and an educational program launched to lessen the incidence of fire. The state has also passed a modern and workable law for the control of insects and diseases. And to round out the program, a Forest Practice Act has been approved by the legislature and put into operation.

The reader who has not been in California or who has only seen its metropolitan areas and more famous scenic attractions will likely have little idea of the size and complexity of California's forest problems. Within

the state there is an extreme variety of soil, topography and climate, including the highest and lowest points in the United States, the driest and wettest localities, areas of no snow-fall and areas of the heaviest snow-fall and many examples of almost everything between these extremes. In part, this variety is caused by California's large area and extent from north to south. The Golden State extends for a latitudinal distance greater than that from Charleston, South Carolina, to Hartford, Connecticut.

California's area of a hundred million acres may be roughly classified as containing fourteen million acres of agricultural, urban and industrial lands; twenty-five million acres of desert and barren lands, and sixty-one million acres of forest and wild lands. This latter area may in turn be classified as containing seventeen million acres of timber crop land, ten million acres of woodland, seven million acres of non-commercial conifers, ten million acres of grassland, seven million acres of sage and ten million of brush land.

California is an important producer of lumber, ranking third in the nation. As a consumer, it ranks first. For many years California has followed the policy of multiple use of its forest lands. Grazing, fish and wildlife and recreation are of great importance.

The greatest value of California's forests is, however, as watersheds. Cities large and small, extensive industry, a water thirsty agriculture and more than ten million people depend for their existence upon these

**The long-range Program for American Forestry approved by the membership of The American Forestry Association several years ago, calls for greater action by the individual states in dealing with their own forest conditions and needs, including harvesting controls adequate to maintain all forest land in production.**

**That this approach will get results when developed at the grass roots level in cooperation with landowners and industry, is vividly demonstrated in this timely article on progress in California. Mr. Rosecrans, the author, served for eight years as AFA president.**

watersheds. Over eighty-five percent of California's well known and intensive agriculture is only possible by artificial irrigation. Water, population and agricultural land are very unevenly distributed. For example, one half the population live in the southern one fourth of the state, and this area has less than one percent of the state's water. By all measures, water is the key to prosperity and production. Water is king in California.

The exploitation of California's forest resources started with American occupation and the Gold Rush. Early logging was usually along streams, somewhat selective and generally not destructive. Later, with the advent of steam outfits, logging became destructive and wasteful. Because of the apparent inexhaustible supply of virgin timber scant attention was paid to the re-growth of cut-

over lands. Some were repeatedly burned and have degenerated into worthless brush fields. Some are partly stocked and others have fine stands of second growth.

By the last quarter of the nineteenth century, and in spite of wasteful lumbering and general public indifference, leadership for forest conservation began to develop. In 1883, in recognition of the importance of its forest resource, the state created its first Board of Forestry. So far as is known, this is the first such state board to be organized. This action, it will be noted, preceded by ten years the creation of the federal forest reserves, forerunners of our present system of national forests—and by twenty years, the organization of the U. S. Forest Service.

Progress in the development of a comprehensive program for the protection of forest resources came slowly. Apathy even more than opposition prevented action. Educational work, however, continued through the years and, in spite of delay and disappointment, its cumulative effect was of enormous value. More than anything else, it contributed to the successful inauguration of the present comprehensive forestry program.

Between 1920 and 1944, the state developed an extensive and effective fire suppression organization. But work on fire prevention did not keep pace. Nor was control of insects and diseases and improvement in forest practices initiated. Through these years and previously, various state boards of forestry and other interested organizations discussed the

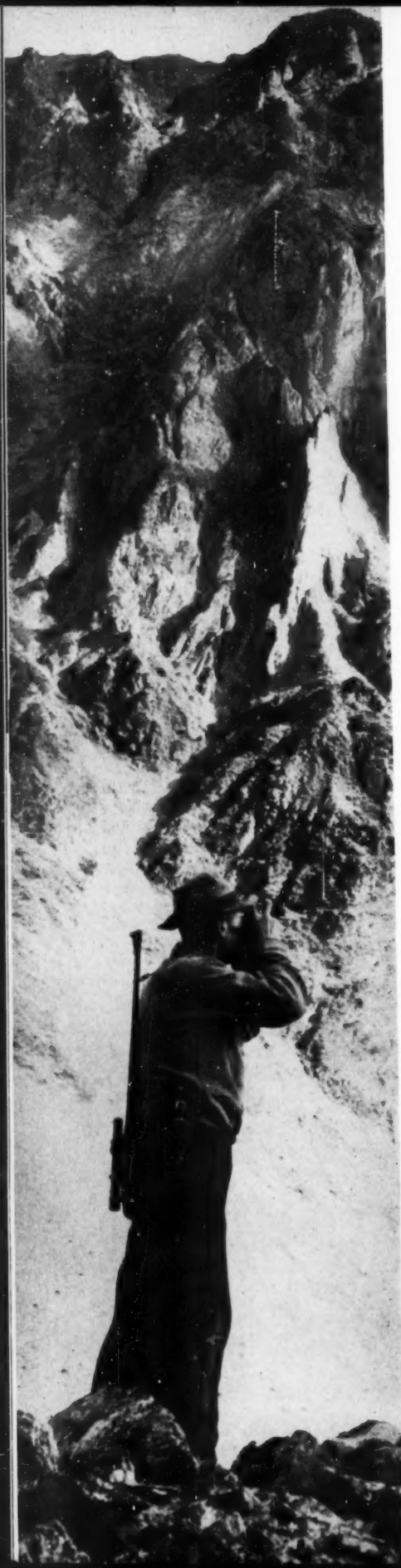
*(Turn to page 30)*



Some of the larger operations in California, as this selectively cut area, far exceed forest practice requirements



Outstanding example of high-grade selective logging is this operation of the Diamond Match Company



# Arctic

## Land of Plenty

By CHARLES ELLIOTT



**The great and rugged wilderness of the Alaska Range abounds in big game — including the rare and elusive Dall sheep**

WE HAD BEEN eight hours in the saddle. It was a long day for muscles accustomed only to the gentle massage of an office chair. But the changing country more than compensated for the aches and irritations that spread around my saddle parts and crept between the blades of my shoulders. All day we had climbed, following a trapper's dim trail. It had brought us out of the great valley of the Mattanuska, upward through forests of poplar and spruce, along shores of lovely sapphire lakes, across the rims of canyons fantastically immense.

We paused to breathe our horses on the edge of a vast plateau. The mile-long climb out of the forest had been rough, even for animals hardened to those mountain trails. This plateau rim was the gateway to a new world, unlike any we had encountered. Along the river and across the lower steppes, the trail had wound through forest aisles, cool and carpeted with grass. Here the land was gray and brown and white, its colors cold and clashing. The plateau rolled for miles on top of miles, barren except for its low brush and its salt and pepper carpet of reindeer moss.

"Yonder," said Leo, pointing, "is where Boulder Creek comes out of the hills."

Beyond the flat a wall of mountains stood, with tier on tier of angled palisades and needle points. The background peaks were crowned with glaciers which had been there since the ice age. It was our first awed glimpse of the Alaska Range that marches east and west across that part of the continent.

Boulder Creek flowed out of the Talkeetnas, a mighty arm of the range. The guides had told us that Talkeetna was an Indian word meaning "land of plenty," and except for an occasional trapper with stamina and courage to endure the arctic winters, few men had ever penetrated beyond its harsh exterior. Except for a lone trapper's shack, it was primitive wilderness, peopled with eagles and wolves, mountain goats and caribou. This was one of the inaccessible ranges of the rare Dall sheep, the home of black, grizzly and Alaskan brown bears.

"We'll have to move along," Leo said, "to make camp by dark."

He turned his horse into an obscure trail that coursed a rocky side hill of the plateau. My mare fell in behind

AMERICAN FORESTS



him and as she stepped along I knew I was embarking on a great wilderness experience.

We made camp in one of the last patches of spruce and cottonwood on Boulder Creek. They told me that the elevation at this point was slightly over 3,000 feet. Most of the mountain peaks that towered a mile above us on both sides of the creek were unnamed. Chickaloon Glacier lay to the west, Vermillion Mountain to the north. These were outstanding landmarks at strategic geological points. Many other mountains in the range, with higher vertical crests, were nameless heaps of raw and ragged earth.

That night before a campfire of blazing spruce, Leo gave us some subtle information about the country we were to hunt for the next two weeks.

"Whether your guide is with you or not," he said, "don't ever relax. Most of the grizzlies and brown bears in this country have never seen a man. They're not afraid and won't run. Even when you're hunting sheep or caribou, keep a weather eye peeled. If you have to shoot, try to break him down in the front or hind quarters."

We were up before daylight. I broke a skim of ice on the water bucket outside my tent and splashed the cold water in my face. Jim Brewer, the cook, had been up for an hour and his breakfast table was laden with substantial food. There were steaming platters of caribou steak, fried potatoes, hot biscuits, rice and gravy, and black coffee. It was not exactly the kind of breakfast with which milady decorated her table back at home. In this unveneered land, a man's bone, blood and sinew needed the kind of nourishment that only meat could give. I mentioned the magnitude and quality of the dishes set before us.

"Without red meat up here," Leo said, "you'll starve. Ask Paul."

Paul Stringer, one of the guides, nodded.

"We were trapping in here two winters ago. Out on the trapline, it was thirty below. Big game was scarce. We ate all the dried fish and rabbit meat we could stuff every meal, and lost weight. Didn't gain it back, either, until I killed a moose and we stayed a week in the cabin and ate it up."

"With weather that cold," Leo

agreed, "a man will starve on any kind of meat but the rich, heavy steaks from moose, sheep, or caribou."

Daylight was gray over the mountain world when we pulled on our mackinaws. The horses were saddled and waiting. I shoved a handful of shells into my coat pocket and jammed my 30-06 home in the saddle scabbard. We rode through an alder clump, crossed the creek that came to the knees of our horses and turned north up the valley. A heavy wind moved down the draw between the mountains, directly in our faces. Leo nodded approval.

"It's blowing in the right direction," he said. "We ought to see plenty of game."

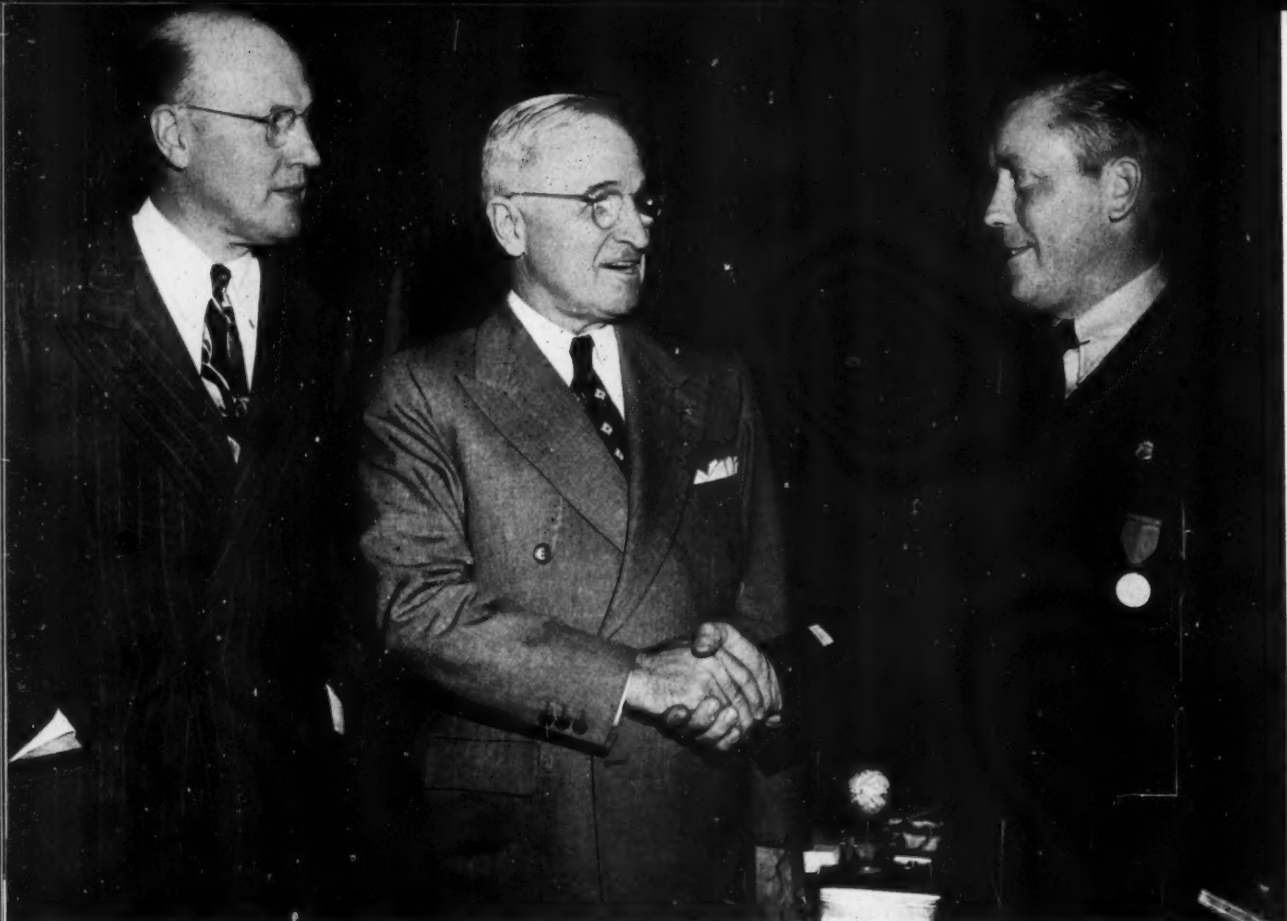
We rode over the polished creek stones for two miles to the first fork of the creek. Here a massive ridge projected into the valley, separating the main creek from an immense canyon that climbed the mountain-side. Paul and I left the other hunters and spurred our horses into a well-worn game trail that zigzagged the face of the slope.

"Keep a sharp watch for bears,"

(Turn to page 42)



Except for an occasional trapper with stamina and courage to endure the Arctic winters, few men have penetrated beyond the harsh interior of the Talkeetnas, Indian word meaning "land of plenty"



President Truman congratulates the Los Angeles fire fighter as Secretary Brannan looks on

## Jim Simons—Fire Hero

**No one can say exactly how many lives he saved, but the heroic action of this modest Californian earned for him the American Forest Fire Medal for Heroism**

**J**AMES W. SIMONS, California bulldozer operator, on May 17 became the ninth man to be awarded the American Forest Fire Medal for Heroism.

In impressive ceremonies at the White House and in the patio of the Department of Agriculture at Washington, President Harry S. Truman and Secretary of Agriculture Charles F. Brannan led government officials and conservationists in honoring this thirty-nine-year-old veteran of Guam and Saipan, whose heroism and devotion to duty on the Topanga Canyon fire just west of Los Angeles last November, prevented probable heavy loss of life and saved hundreds of homes and much valuable watershed land.

The occasion marked the first time the medal, under the auspices of the American Forest Fire Foundation Awards Committee, has been awarded since before the war.

With flags flying, band playing and newsreel cameras clicking, the medal was presented to the modest Californian, who is employed by the Department of Los Angeles County Forester, by Secretary Brannan after brief addresses by Lyle F. Watts, chief of the U. S. Forest Service, and S. L. Frost, executive director of The American Forestry Association, which serves as trustee of the Forest Fire Medal Award. Hero Jim Simons was then escorted to the White House, where he received the personal congratulations of the President.

During this brief but colorful ceremony, Mr. Truman, after asking Jim to autograph a fire prevention poster presented to him, affixed his own famous signature to the Certificate of Achievement tendered the hero by the Awards Committee.

Later Simons flew to New York to relate over a nationwide radio network the story of the Topanga Canyon fire which burned over 3,000 acres.

The fire, which started around noon on November 4, during a prolonged dry spell, was fanned by a high wind and in an hour's time had traveled three miles, burning 123 homes and other structures.

When Simons arrived shortly afterward with his bulldozer, the fire

had almost reached the Topanga Woods and was threatening the several hundreds of homes in the vicinity. Beyond was the even more thickly populated suburban area of Fernwood. Due to the steep canyon slopes and the strong wind, the ground crews had found construction of a fire line ahead of the advancing flames impossible and had been forced to withdraw. There was a chance that such a line might be made with a bulldozer, but because of the extreme hazard involved the fire boss hesitated to order a frontal attack.

Jim Simons volunteered to tackle the job. It was necessary for him to drive directly across the front of the fire while at the same time cutting through heavy brush. As he did so, he and the bulldozer were at times practically enveloped by flames. But he persisted, clearing a fire break, piling up dirt on the fire, and finally checking its forward progress. When he came off the fire line, his clothing had been partly burned off, his hair was singed, and his face blistered. His skill with the bulldozer, which he was forced to drive on mountainsides where it seemed impossible to avoid overturning; his persistence in the face of the flames, and his disregard

of his own safety aroused the admiration of all who witnessed his efforts. Records credit Simons with saving 550 buildings, including 265 homes, valuable watershed lands, and preventing almost inevitable loss of life.

Award of the American Forest Fire Medal for Heroism was first made in March 1939, when it was given to U. S. Forest Ranger Urban J. Post and CCC Foremen Bert Sullivan and Paul E. Tyrell for their part in saving the lives of twenty-five CCC boys trapped in a forest fire on the Shoshone National Forest, Wyoming. Sullivan and Tyrell lost their lives in the fire, their awards being made posthumously.

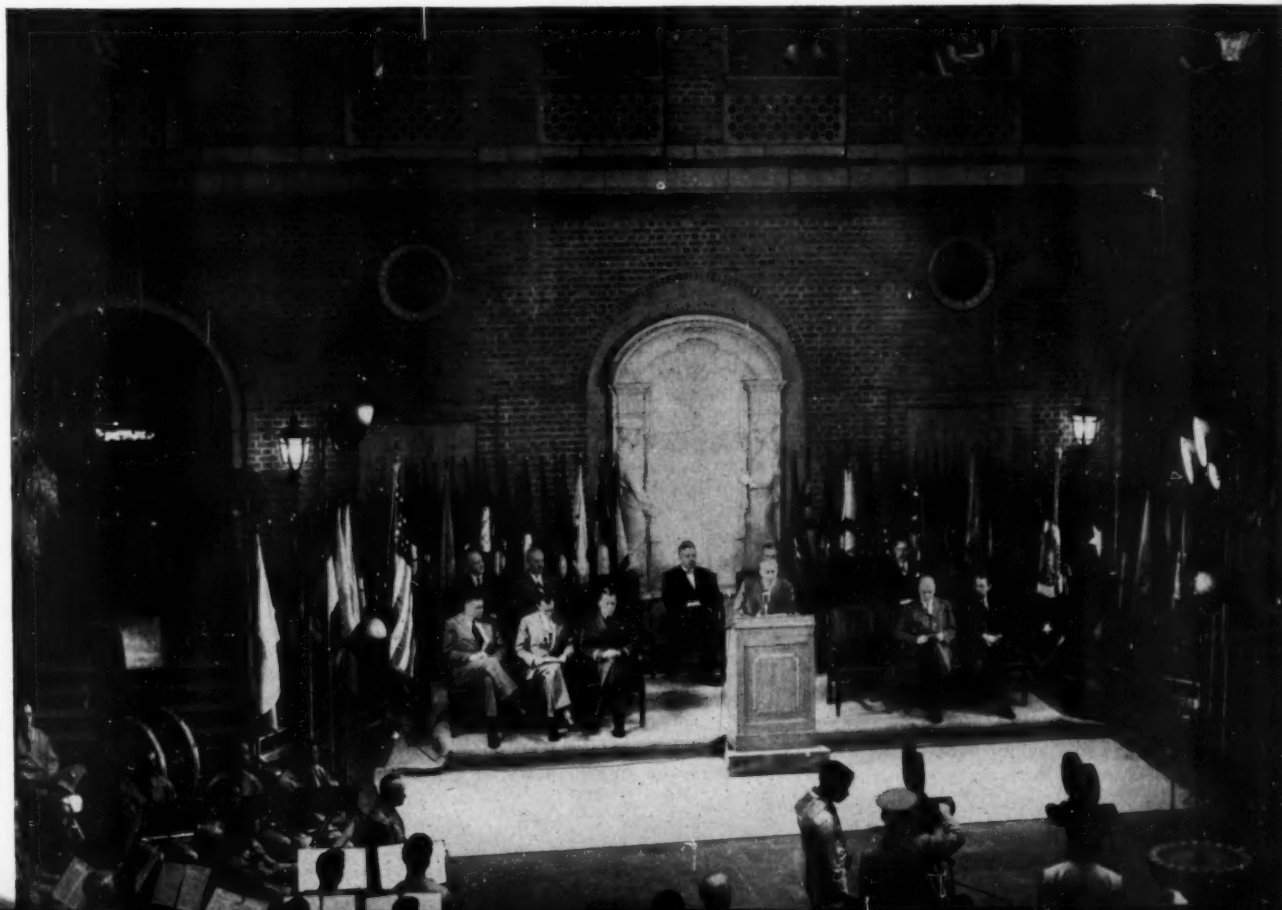
Since that time awards have been made posthumously to Andrew Lingren, who lost his life in the Welcome Lake Fire, Huron National Forest, Michigan, in 1937; posthumously to Ernest R. Tippin and Walter James, who lost their lives in the Rock Creek Fire, Toiyabe National Forest, Nevada, in 1939; to Clarence B. Sutliff, for heroism in the Roaring Lion Canyon Fire, Bitterroot National Forest, Montana, in 1939; and to Louis H. David, for outstanding heroism in the Cow Creek Fire, California, in 1941.

The Awards Committee is com-

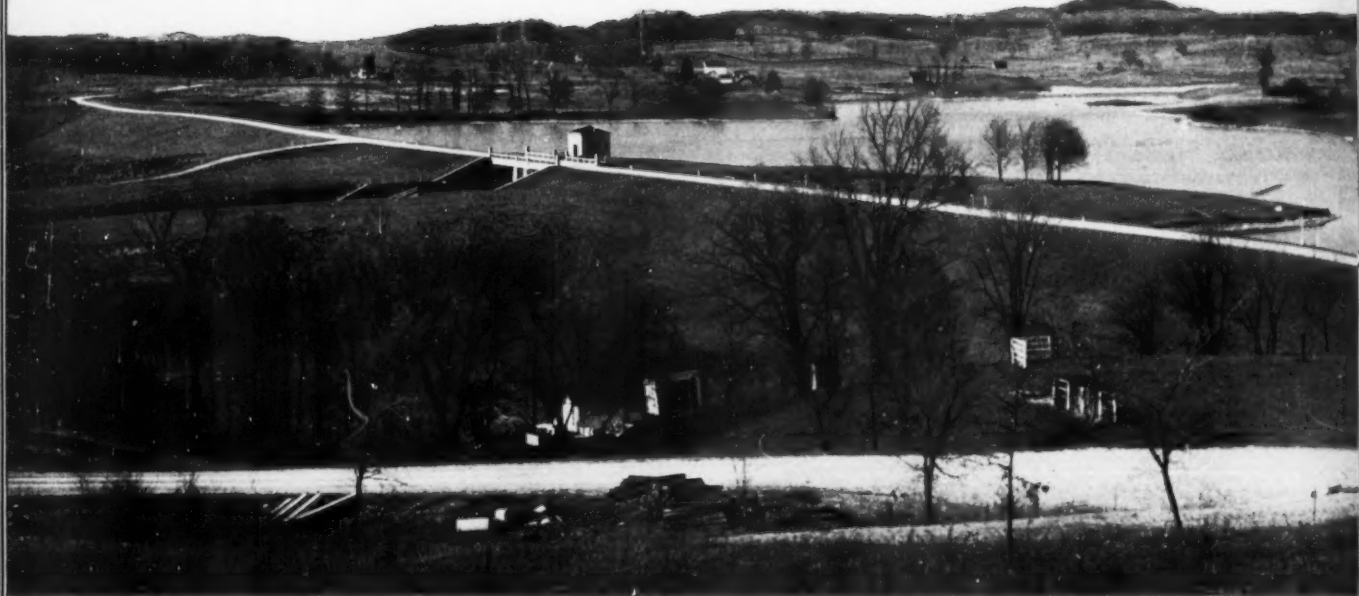


posed of R. E. McArdle, assistant chief of the U. S. Forest Service, who as chairman represents The American Forestry Association; W. K. Beichler, state forester of North Carolina, representing the Association of State Foresters; Tom Gill, representing the Pack Forestry Foundation; Charles A. Gillett, representing the American Forest Products Industries, Inc.; John D. Guthrie, representing the Society of American Foresters; and J. D. B. Harrison, representing the Canadian Society of Forest Engineers.

The band played and cameras clicked during the award ceremony in the patio of the Department of Agriculture. Here U. S. Chief Forester Lyle Watts is introducing Secretary Brannan who presented the medal







Seneca Dam—one of fourteen in the Muskingum Valley

# The Miracle of MUSKINGUM

How Ohioans got together and put the stamp of health on the Muskingum Valley constitutes an irrefutable argument for land use projects developed and directed at the community level—by democratic processes

By JAMES B. CRAIG

How the people of eastern Ohio tamed the lawless Muskingum River and converted their flood-ridden valley into a land of sparkling lakes, hardy young forests and rich, productive farmland is a saga of initiative at the community level that could happen only in a democracy.

The Muskingum Watershed Conservancy District, hub of this inter-related network of land use projects, has been called the cradle of the most extensive soil and water conservation experiments in the world. In a little over a decade and a half it has been the guiding hand in the completion of a \$45,000,000 flood control project, including fourteen dams, ten artificial lakes and four dry reservoirs, that has banished the fear of floods from the valley forever.

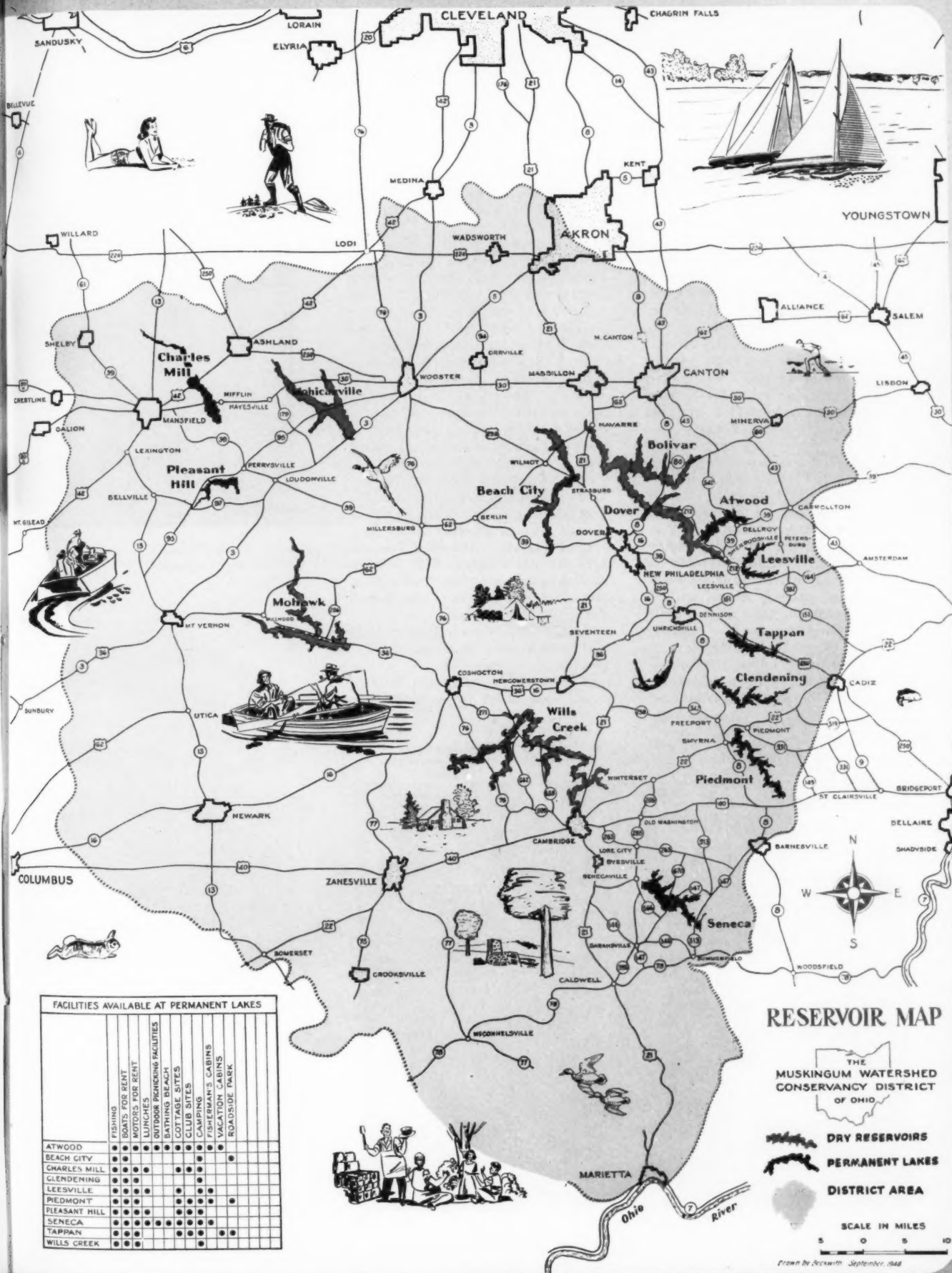
Its land use program is spearheaded by a tree-planting project (600,000 trees a year by 1951) that will eventually provide a necklace of forests for each of the picturesque lakes and solve the problem of 20,000 acres of district-owned land considered unsuitable for any other purpose. More recently a \$600,000 recreation program has been launched, the magnitude of which dwarfs anything recreation-hungry Ohioans have seen up to this time.

Created in 1933 by a conservancy court consisting of one Common Pleas judge from each of the eighteen counties embraced in an 8,000-square-mile drainage area (roughly one fifth of Ohio), the district is an agency of local government. But here the comparison to much government as we know it ends, for the district pays its own way. It receives no tax income, pays taxes on 65,000 acres of dis-

trict-owned land. Operating revenue is derived from agriculture (including forest products) and recreation. And the district's closely-knit staff of about fifty—a healthy contrast to many top-heavy government agencies—has consistently cut costs and shown profits even on such ordinarily unprofitable ventures as woodland improvement cuttings. In other words, it operates on a business basis.

A Tuscarawas County farmer who left his tractor for an across-the-fence chat said the district was the story of people "who were determined to give their land a chance to amount to something."

"The best thing about it has been that our folks worked out their own plan and then stuck to it," he said. "I recall the Army Engineers wanted to build one big dam when the thing started. That would have meant a lot of farmers would have been flooded



out for keeps, dislocated industries.

"The district people wanted to build smaller dams back on the tributaries. After all, that's where the water comes from. And they did. In fact, the whole job has been done the way people around here wanted it done. I guess they must have had twenty or so state and federal agencies working in here at one time a few years back—but they all did the work according to district plan. And that was a good thing.

"This is all going to be a great thing for my boy," he added, with a nod of warm approval in the direction of a sun-tanned youngster engaged in filling an old tomato can with angleworms from the freshly-plowed, clean-smelling earth. An array of fish hooks and a red striped bobbin were attached to the hatband of his battered straw hat and the pockets of his blue overalls bulged with what must have been a vast storehouse of boyish treasures.

To visit the Muskingum District is a heart-warming experience, for the stamp of health is on this valley and visitors sense the rightness of it. People here are giving the land a helping hand and the evidence is visible on every side. In driving over the winding roads, passing sedately-attired Amish people in their horse-drawn buggies, one notes that the color of the land is good. And the story is told in fenced-off, undisturbed woodlots where young seedlings are crowding in, in the gracefully-contoured

fields with their strips of wheat and oats, in the light green strips of corn and the darker, velvety green of the bluegrass.

The fact that both soil and water are being held on the land is evidenced not only by the contouring but by the numerous fish ponds, the ribbon-like grass waterways on hillside cornfields, by the absence of ugly gullies and by strategic plantings of young trees.

What does this mean to the people of the valley? To Joe Reed, of Canton's Republic Steel plant, it means a certain cove on Clendening, most untamed of all the lakes. Here an old gravel road, abandoned when the lake came into being, disappears abruptly when it runs into the water. On pleasant days when the sunlight glints obliquely through the dogwood and tulip trees a fisherman can see the gravel pebbles moving restlessly on the lake bottom and shadowy forms—bass, bluegills and crappies—dart swiftly over the gleaming stones. Here Joe caught his finest string—and to him this secluded cove is the district. Coves on other lakes—Seneca, Piedmont, Atwood, Tappan, Leesville and Pleasant Hill—have similar meanings to some two million other rod and reel men who fished district waters last year.

To Joe's boss, George Putnam, and other industrialists who view the district with increasing favor, it has come to represent newfound, healthy recreational outlets for their workers

**To speed up its tree planting program, the district developed the famous Muskingum hillside planting machine. Its potentialities are enormous**



—outlets that are curbing absenteeism, checking traffic at saloons and road houses. To farmers, the district means freedom from floods, better yields and a chance to plan ahead. Soil experts view the deepening green richness of the lush meadows of clover in terms of so much fertilizer per acre and water contained on the land.





Atwood Lake looked like this when it made its initial appearance in the valley. Over five million Ohioans living within a 75-mile radius made it mandatory that this lake be developed for recreation



This is the way Atwood will look eventually. The trees have been planted already. Water front development is progressing. Other lakes in the Muskingum chain are slated for similar treatment

Foresters, recalling that hardwoods previously refused to grow on the hot, brownish hillsides, note with approval how these same reluctant hardwoods are pushing back in now that the earth has been cooled and enriched by wide-scale plantings of white and pitch pine. New Philadelphia merchants, including news ven-

dors who now carry a full line of fishing tackle along with their newspapers and comic books, say simply, "the district has helped my business."

These things are all a part of the overall pattern of achievement, but few local people attempt to sum up the importance of the program as a whole. It is perhaps those pilgrims

from other places—the conservationists who come to observe and translate what they see in terms of the needs of their own communities—who come the closest to evaluating the district's great importance.

What they see fires their imaginations, for to them the district represents a great hope—a key that pro-



Seneca Lake—one of the ten reasons why Ohio's fishing population increased 100 percent when Muskingum district lakes were created

vides the right degree of cooperation between communities and government agencies. Uneasy over the possibility of further liberty-sapping encroachment by big government projects, visitors note that here the control is vested in the people and that the government agencies cooperate, but do not dictate, in carrying out the district plan.

Like most great achievements, the Muskingum program was the stepchild of adversity. The great flood of 1913 — Ohio's greatest disaster — stirred the people as nothing ever had before. But it wasn't until fifteen years later, when people were chilled by the sudden realization that the great floods had been occurring at fourteen and fifteen-year intervals, that the people of Zanesville raised money for its first flood control survey.

This survey headed by Dr. Arthur Morgan, engineer and former president of Antioch College, emphasized three basic points which at the time seemed difficult to accept. They were (1) that the Zanesville flood problem was not a local one and must be approached on a drainage area basis, (2) any solution should include not only flood control but water and soil conservation, recreation and any other feature which might be economically justified, (3) state and federal agencies had a stake in any program so broad in concept, and assistance from these sources was necessary for its financing.

Equipped with this information, Zanesville leaders started a crusade

of missionary work up and down the shabby little creek towns that had felt the full impact of the 1913 catastrophe. Ohio's great drought in 1930 which emphasized anew the need for the Muskingum program resulted in the formation of a valley organization, and funds were raised for a more comprehensive survey.

When the late President Roosevelt in 1933 made his address announcing the formation of the Public Works program, Muskingum people were ready. District leaders moved swiftly. Personnel was divided into two task forces. One had the job of organizing the district and had done so twenty-four hours after the President's speech. The other force moved on Washington. That the latter group was right on top of the game at this point is best illustrated by the fact that when the newly-appointed director of the CCC arrived looking for his office, the Muskingum contingent met him at the door and cordially invited him in for a conference.

Needless to say, the Muskingum Watershed Conservancy District qualified for a PWA grant and the valley's flood control program was on its way. The original federal grant of \$22,090,000 for construction purposes was increased in 1936 by \$3,500,000 and in 1937 by an additional \$1,600,000.

That was the start. And from then on the staff of the young district had to keep a firm hand on the throttle, for this dramatic new program ushered in a period of hectic activity. At the peak of construction, work was

proceeding simultaneously on fourteen large dams, nine railroad relocations, three gas line relocations, four levees and one power transmission line in addition to thirty-five lesser contracts.

Muskingum's planners had been told that state and federal agencies would not work together willingly in a program developed and supervised by local government. The reverse proved true. In the beginning the district laid down a policy that it would not willingly duplicate the work of any other agency of government and it has adhered to that policy. There were misunderstandings, of course, but solutions were found. From the very first the district has shown an almost uncanny genius for organization and cooperation.

Not that there haven't been headaches. The creation and organization of the district, the appraisal work, the rights-of-way, the flood easements — jobs that turned valley courthouses into beehives of activity — all the details involved in clearing vast tracts of land, cost the district \$9,000,000.

Approximately 144 miles of the 376 miles of roadway in the fourteen reservoir areas were relocated by the Ohio State Highway Department at a cost of \$8,920,000. Whole towns were moved, which unquestionably was a good thing for most of these dreary little hamlets that hugged the river banks. The new towns were laid out in an orderly, attractive manner — with churches and schools that gave dignity to the community, public squares and lots with sufficient room for flower beds and gardens. People generally profited financially by this moving. In fact, the inhabitants of a recalcitrant hamlet who complained so bitterly about moving that they were left alone, today reproach the district for its failure to use force.

Then there was the matter of moving cemeteries, and the almost impossible task of convincing some citizens that the remains moved were those of their departed relatives.

Finally there were the people on individual farms and lots — and in some instances, when it involved elderly couples leaving their homestead, there was a touch of tragedy. But in most cases it was a healthy thing, and the cooperation of the people is shown by the fact that of the 6,800 property units acquired only 150 went to definite court action.

The biggest source of complaint now is the inundation of roads behind the reservoirs in times of high water. Relocation of these roads is a

state highway project and, for various reasons such as administration changes, work in some instances has not been completely finished. But it will be.

All construction work, including the necessary relocation of railroads and other public utilities, was under the supervision of Lieutenant Colonel J. D. Arthur, Jr., of the U. S. Army Engineers, a man who won the respect of the district and who, on more than one occasion, even fought the district's battles when deviations from the original plan were suggested.

Valley people still chuckle when they recall how the colonel was stymied when it came to naming Mohawk Dam—biggest of all the earthen dams, necessitating excavations totaling 2,794,185 cubic yards of earth and rock—on the Walhonding. It had been customary to name dams after the closest community, and the closest community to this particular dam was a hamlet called Nellie. The colonel vowed he would never name his biggest project after a female—and historians were set to work to see what they could dig up. In due time they came up with a long-forgotten Indian village by the name of Mohawk that was believed to have been located in the general vicinity. That was close enough for Colonel Arthur. The dam was named Mohawk and he was content.

The district's fourteen reservoirs are divided into three systems, located on the three main tributaries of the Muskingum—the Walhonding and Tuscarawas rivers and Wills Creek. Total capacity of the reservoirs is 1,539,200 acre feet (an acre foot is the amount of water necessary to flood one acre one foot deep), of which 1,326,000 acre feet are reserved entirely for flood control and the remaining 212,800 for water conservation.

Originally, Army engineers had said that flood control and recreation would not mix. The district mixed them just the same, and today has a recreation program that is worth an estimated \$1,000,000 annually to people in the Muskingum Valley. And this bonanza has scarcely been tapped.

In one swoop the district increased Ohio's inland lake area by fifty percent and the number of fishermen by 100 percent. These ten lakes—including Piedmont, the fairest, Seneca, the broadest, Clendening, the most untamed, and Charles Mill, the most quaint—all have a distinctive personality. They provide recreationists

### AFA to Visit Muskingum

One of the chief attractions of the Annual Meeting of The American Forestry Association October 10-13 will be a field trip through the Muskingum Conservancy District directed by Bryce C. Browning.

Opening October 10 in Wheeling, West Virginia, the meeting will move to the conservancy district October 12 with the Annual Banquet scheduled for that evening in Akron.

A barbecue at Louis Bromfield's Malabar Farm and a visit to the Wooster Experiment Station will be features of the October 13 session.

with 365 miles of surrounding shoreline dedicated to public use. Only twenty percent of the adjoining district-owned lands, however, may ever be developed for intensive park use, vacation cabins, cottage sites, club sites and other so-called commercial purposes.

The administration of this water acreage is very simple. Everything at the conservation or normal water-storage level is the business of the Conservancy District. Everything above is the concern of the Army Engineers. With 16,380 acres of land permanently flooded, it has been computed that 60,000 more acres could be added in a pinch—more than enough space to swallow up a flood of 1913 proportions—a flood that "happens once in never," as Professor Barnes of the Case School of Applied Science phrased it.

The U. S. Soil Conservation Service, with the assistance of the U. S. Forest Service, has planned and in a large measure supervises the district's land use program. Because of the nature of the 50,000 acres of district-owned lands, growing trees is the major land use.

The tree planting program is directed by H. P. Garritt, forester assigned to the district by the Soil Conservation Service. His program amounts to a forest encirclement of the lakes. Atwood and Leesville have already been "ringed"—and to see these glistening bodies of water enveloped by their man-made forests is a beautiful sight. Plantings here are chiefly white, red and pitch pine, but the stands will be mixed, for volunteer hardwood seedlings are already pushing in between the conifers planted every seven feet in rows seven feet apart.

There's no closed season, no limit, in the Muskingum Valley's land o' lakes

In the last eight years one-and-three quarter million trees have been planted on 22,000 acres of district land. Twenty thousand acres remain to be planted. This year, 228 thousand more seedlings went in. By 1951 Mr. Garritt confidently predicts he will be planting 600 thousand trees a year. After that? No one can say, but Mr. Garritt frequently mentions that forty-four percent of the land in Tuscarawas County is unsuited for agriculture. Similar conditions exist in other district counties.

The celebrated "Garritt System" of tree planting—highly mechanized—is amazingly effective. A sixteen-inch double bottom two-way plow that cuts to a depth of eight to ten inches forms a contour ridge—Mr. Garritt calls it a "work bench"—with the terraces about seven feet apart. The plowing is done six months to a year ahead of planting to allow time for the ridge to settle and for water capillaries to become re-established.

While this plow has been used with good results, Garritt, the perfectionist, isn't wholly satisfied. Right now he is working on improvements—a modified version that will include perfected molding boards to build a more uniform ridge and a spring release hitch to reduce breakage when the plow collides with stones.

The "work bench" formed by the plow—in effect a level track—is the course over which the famous Muskingum type tree planter developed by Mr. Garritt makes its hillside run. And "run" is the word when one thinks in terms of 8,000 trees a day

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W. H. Jackson's well-known painting of the Powell Expedition encamped in the canyon of the Colorado

# He Tamed the Colorado



Major John Wesley Powell lost an arm at Shiloh—but not his lust for adventure. Eighty years ago this summer he led a party through the Grand Canyon and solved the age-old mysteries of the Colorado

By MARK HANNA

In the spring of 1869, a wheezing little train of the newly-constructed Union Pacific Railroad whistled to a clanking stop in the frontier town of Green River City, Wyoming. There was freight on board from distant Chicago—four newly-constructed river boats, three of oak and one of pine. All were consigned to Major John Wesley Powell, one-armed veteran of Shiloh. Interested in geology, and not wholly believing miners' and trappers' tales about the dark river to the south, Powell planned to explore and to chart the dangerous Colorado.

Four years had passed since that solemn day of April 9, 1865, when courtly grief-stricken Robert E. Lee had given his general's sword in silent defeat to Ulysses S. Grant. The South lay prostrate in ruin. The North still mourned the tragic assassination of Lincoln. Restless with the aftermath of war, Americans turned to the West. Soldiers, miners, homesteaders and adventurers thronged to cross the Mississippi and fare westward into the territories where the thunder of the buffalo and the beat of the Indian war drum still quickened the blood.

Gathered with Major Powell at Green River City were nine other

AMERICAN FORESTS

men—not one, strangely enough, a rough water boatman. Four, including Powell's own brother, had been soldiers. Two were printers and one had followed the buffalo and the beaver. None of them had any real idea of the dangers to be faced in the roaring river to the south. But they were tough. The men who walked and drove through the dusty streets of towns like Green River City in the eighteen sixties, had little time for timid imagination.

Major Powell himself was a fearless soldier who lost his right arm at Shiloh. Undaunted, he carried on through the war with the aid of his plucky young wife, to whom General Grant gave a perpetual pass to follow the army. When the shooting stopped he conducted geological explorations in Colorado, and it was then that he determined to plunge into the mysterious and savage river to the south.

The four boats left Green River City on May 24, 1869, carrying such scientific instruments as barometers, chronometers and sextants — and enough coffee, flour, sugar and other supplies to last ten months. Major Powell led off in the skiff *Emma Dean*, named in honor of his wife.

Of the ten men who set out, three would never return. Ironically enough, they were to lose their lives by Indian arrows and not in the treacherous whirlpools of the Colorado.

The prospects for all were none too good. Few men had even seen the great river where it entered the awesome gorges of the Grand Canyon—and these had fearfully peered down from the rock ledges 4,000 feet above the swirling water. Unable to follow the course of the river from the cliffs, hunters and trappers thought it roared through dark and terrible underground caverns from which there could be no possible escape.

An Indian told Major Powell of an attempt by one of his braves to run through an upper canyon of the Colorado. In a mixture of halting English and the Indian sign language he said, "The rocks heap high; the water go h-oo-woogh, h-oo-woogh; water pony (the boat) heap buck; water catch'um. No see 'em Injun anymore; no see 'em squaw anymore; no see 'em papoose anymore."

The major and his men soon found it true that their "water pony" would "heap buck." After three days of comparatively smooth drifting downstream, the flotilla of four boats struck the Flaming Gorge, the first great canyon of the Colorado series. From then on until the end of August, when the battered and weary

crew emerged from the Grand Canyon near the Nevada boundary, the voyage was a nightmare of plunging, leaping, twisting boats that bucked and jumped and banged against the rocks.

The river swirled and eddied, then sucked and roared and drove the little boats mile after mile in a furious welter of foam and rocks. Time and again Powell and his men were thrown against some jagged boulder, their oars smashed like crazy matchwood. Each restful interlude of smooth, swift water was followed by a raging descent into some hellish maelstrom often miles in length.

In the north, as the flaming western sun would sink toward the dark masses of the Wasatch Range in Utah, the four boats would tie up in still water or in the nook of some quiet little gorge that emptied its tributary stream into the mighty Colorado. While some of the men got biscuit-batter and bacon ready, and others searched out fallen timbers for new oars, the major would explore. In spite of his one arm, he would climb about on the cliffs and crags watching the mountain sheep or the swallows. He would scramble up on some wooded plateau, high above the swirling water, and note the bounding mule deer as they leaped gracefully over the fallen logs of yellow pine. He saw grizzly bear and mountain lion, elk and wildcat. Of course, he noted the rocks.

In Utah, Powell saw where the Colorado had cut through the great rocks of the Mesozoic or fourth chapter of earth's geological history. He could see the fossil footprints of the dinosaurs or "terrible lizards," weird monsters of horns and scaly armour

plate that had slogged with their cumbrous bodies over the plains of Utah in ancient times. He could find the crystals of petrified wood, shimmering remains of the bark and pith of ancient pine-like trees all turned to stone by the action of water and silica.

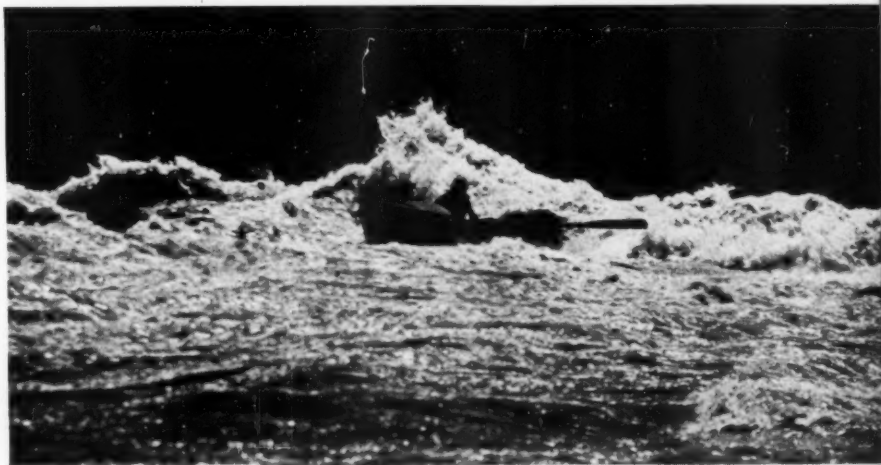
Farther south, as the cataracts of the river cut deeper and deeper into the layers of the earth, he could see where the water had gouged into the third chapter of the earth's rocks—even into the second and the first. He saw sandstone, thick layers of it piled up by the blistering winds of an ancient desert. He saw the bedding planes of the ancient sand dunes. He noted the bands of shales or hardened river muds turned to stone and tinted red by oxide of iron. The shales had fossil ferns, and often enough the wobbly, silly tracks of quaint forgotten lizards.

He saw the limestones, great beds of them compressed and hardened from the curious rubbish of the sea which once had covered the land. The limestones had fossil remains of sponges, sharks, corals and the curling spiral shells of marine waters. Then he saw the schist, strange black rock streaked with pink granite which buttressed the inner gorge of the Grand Canyon. The schist was the oldest of the rocks, almost older than time itself—formed perhaps two billion years in the past.

Each night as the men lay about the campfire of burning juniper logs or the gnarled branches of pinyon pine, and the blue smoke curled upward to blend and fade into the gigantic backdrop of shadow and cliff, they talked. Usually it was of the

(Turn to page 41)

**Swirling rapids required great skill and judgment to negotiate. Boats were headed stern first into their course, from which there was no turning back.**  
Kolb Brothers Photo



# Leaf Spot of Magnolia

By MARVIN E. FOWLER

Recognized as one of the grandest of all broad-leaved evergreen trees, southern magnolia, *Magnolia grandiflora* L. is native of the coastal sections from North Carolina to Texas, but is precariously hardy north to Philadelphia. Its tall and erect growth, large, thick, waxy, deep green leaves, fragrant, massive, white flowers, and bright coral-red seeds in its conelike fruit make it one of the most attractive of all ornamental trees.

Like other trees, the magnolia is subject to a number of leaf diseases. A very striking leaf spot is prevalent on the older foliage of *Magnolia grandiflora* in many places in the South. This leaf spot is usually circular and is large, averaging about a half inch in diameter. Spots sometimes merge, and the resulting killed area may be an inch or more long. The spot appears to be very dark brown, almost black, surrounded by

a narrow pale yellow border and contrasts vividly with the waxy green portion of the leaf. Closer examination reveals that the killed tissue on the upper leaf surface is finely mottled dark brown and black. Pustules with the appearance of fungus fruiting bodies are common on this tissue, but those examined proved to be sterile. On the under side of leaves the spot is more uniformly dark brown.

This large leaf spot of magnolia has attracted the attention of mycologists and pathologists for more than thirty years. Numerous specimens have been collected, many of which were placed in the mycological collections of the Bureau of Plant Industry, Soils, Agricultural Engineering of the Department of Agriculture. The cause of the disease was not determined although several individuals made microscopic examinations of sectioned leaf spots.

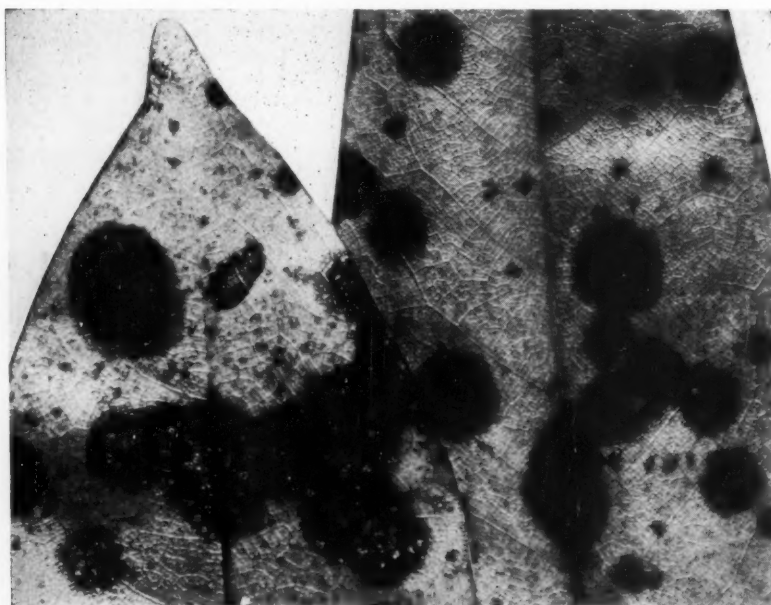
The disease has now been found to be caused by the ubiquitous *Glomerella cingulata* (Ston.) Spauld. and Schrenk, the fungus that causes bitter rot of apples. This fungus was easily isolated from a large percentage of cultures from diseased leaf tissue. Inoculations made on magnolia leaves with isolates from magnolia leaf spots and with isolates from bitter rot of apples produced identical leaf spots and the reisolated fungi, together with the original isolates, produced indistinguishable bitter rot on inoculated apples. The differences observed in cultures of the fungus from magnolia and apple are no more than are usually found between isolates from different apples in a single orchard.

The leaf spot of magnolia caused by the parasitic alga *Cephaleuros virescens* Kunze, may be as large as the *Glomerella* spot but is easily distinguished from it by the hairlike outgrowths of the alga that forms a velvety coating on the upper side of the leaf.

Recent collections have been made of the *Glomerella* leaf spot on native and planted magnolias in South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas. All of these collections have been made within the natural range of the host tree where the fungus is probably greatly favored by the warm and humid climate.

The disease does not appear to prematurely defoliate or slow the growth of trees, nor does it greatly mar the beauty of ornamental trees. Healthy current year foliage is usually well developed before spots appear in the early spring on the leaves remaining from the preceding year. This new green foliage very largely obscures the diseased leaves farther down the branches. Ornamental trees with one to several large spots on most of their older leaves may appear quite healthy when casually observed from a distance of a few yards. Control measures have not been attempted.

Close-up of the blotchy discolorations caused by *glomerella* leaf spot on two natural size magnolia leaves







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## COULTER PINE

*Pinus coulteri*, D. Don

By WARREN D. BRUSH

ALTHOUGH a smaller tree, Coulter pine in general appearance resembles young or middle-age ponderosa pine, with which it is sometimes associated. However, it is easily distinguished by its stiff, much heavier foliage, stouter twigs and huge cones. It is sometimes called big-cone pine. Other common names applied locally to the Coulter pine are pitch pine and nut pine.

Ordinarily it is from forty to sixty feet high, with an irregularly open, heavy-branched crown. The clear trunk is short—from ten to fifteen feet—and from

eighteen to thirty inches in diameter. Occasionally, trees reach a height of nearly seventy-five feet and a diameter of three and a half feet. The big lower branches are long, bending downward often to the ground, with an upward curve at their ends, and the upper branches are short and ascending, forming a loose, unsymmetrical, often picturesque head.

The stout twigs are dark orange-brown at first, becoming nearly black at the end of three or four years, and roughened by the persistent bases of the bud scales. The

winter buds are oblong egg-shaped and resinous, sharp and often abruptly pointed. The bud scales are dark tipped and fringed on their margins.

On dry warm slopes and ridges, as well as sometimes on more moist sheltered north slopes, Coulter pine occurs on the coast ranges of southern California, generally at elevations of from 3,000 to 6,000 feet. At lower altitudes, it occurs singly or in groups on summits and in sheltered ravines and hill coves. Coulter pine never forms pure forests but is commonly associated with incense cedar, ponderosa pine, big-cone spruce, sugar pine and live oak.

The stout, dark, bluish green leaves,

Coulter Pine is distinguished by a heavy-branched crown, short trunk, stiff, heavy foliage and huge cones



three to a bundle, are from six and a half to twelve inches long. They occur in immense bunches at the ends of the branchlets and are deciduous during their third and fourth seasons.

The staminate, or male, flowers are in crowded cylindrical and somewhat curved clusters; their anthers are yellow. The pistillate flowers are oblong-oval, their scales ovate and dark reddish brown covered with a whitish bloom and contracted into long incurved tips.

The huge, armed, extremely heavy cones distinguish this pine from all its relatives and associates. Coulter pine produces the heaviest cones of any American pine. The largest, when green, have weighed from four to five pounds. Measuring from ten to fourteen inches in length, they are egg-shaped, short-stalked and pendant. The thick, broad, light yellow-brown cone scales terminate in flattened elongated knobs armed with more or less incurved flat claws, one-half to one and a half inches long. Those near the base of the cone are the longest and exhibit the greatest curvature. The scales are dull dark purple on the exposed surfaces.

The cones mature by August of the second summer and, during October, open partly and continue to shed a few of their seed for several months. Some of the cones remain attached to the branches for six years or more. The oval, compressed, dark chestnut brown seeds, about one-half inch long, are thick-shelled and encircled by a thin wing with a thickened inner margin, broadest near the oblique apex. The wing is nearly twice as long as the seed and is shiny brown, striped with darker lines. The seeds were formerly gathered in large quantities and eaten by the Indians of southern California.

The bark is roughly broken, even on young trees. That of old trunks is from one and a half to two inches thick, dark brown to nearly black, and deeply furrowed, with broad, rounded ridges which are roughly scaly and irregularly connected with one another.

The wood is coarse-grained, light and soft, with light red or reddish brown heartwood and thick, nearly white sapwood. It is suitable for low-grade lumber, but is rarely cut except for fuel. It was formerly used in large quantities for the production of charcoal for blacksmith shops.

Although some seed is produced every year and large crops are released about every third year, reproduction is never dense. The heavy seeds usually fall close to the parent tree and much of it does not encounter conditions suitable for germination. Too, the seed retains its vitality for a comparatively short time. However, seed is produced at an early age and cones are often borne on trees only ten to fifteen feet high.

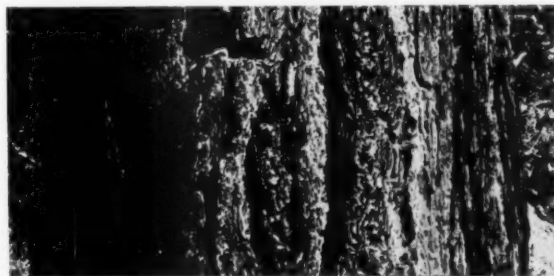
Coulter pine is a slow growing species. Trees from twenty to twenty-six inches in diameter are 110 to 125 years old. It probably does not reach a greater age than 200 years. The tree cannot endure shade except when very young when it competes successfully with chaparral.

In European countries this is a popular ornamental pine and is planted chiefly for its great golden-brown cones. It is also planted somewhat as an ornamental tree in the United States.



Dr. A. E. Hubbard

The egg-shaped cones, the heaviest of any American pine, weigh four to five pounds when green



Dr. A. E. Hubbard

The bark is roughly broken even on young trees. On old trunks it is dark brown and deeply furrowed



The natural range of Coulter Pine in the United States



## Forestry By the People

(From page 13)

need of comprehensive action. All of the needed measures were considered, but the subject did not get beyond the discussion stage.

In recent years it has been increasingly clear that a modern, progressive program of forestry was urgent. As the largest timber user in the nation, California has been harvesting around three and a half billion board feet annually. Of this, it has exported about a billion feet—but has imported a billion and a half from the Northwest. The best available figures indicate that California's forests are at present growing about a billion and a half feet a year. Under good management this rate could be increased to three and a half billion feet, or more than double the present yield.

Earl Warren became Governor of California in 1943. In the fall of that year he called me on the phone and asked if I would meet with him to discuss California's forest problems. At the time I was serving a third year as president of The American Forestry Association. During that period attempts had been made to use the war as an excuse to impose federal regulation of cutting practices on privately-owned lands. In opposing such attempts, I had emphasized the long-standing policy of the Association which favored state regulation of cutting practices, and our conviction that progress in good forestry had to come from education and action at the grass roots.

When the governor and I met, it quickly developed that our ideas on California's forestry problems were in agreement. We discussed the kind of program that would be needed. This was practically identical to the program which has been developed and carried out during the past five years.

The first problem was to select a competent and representative Board of Forestry. After careful study, a small confidential group submitted a slate for the governor's consideration. As it was desired not to embarrass him in the event that politically he might not favor some on the list suggested, two alternates were named for each position. It is noteworthy and typical of Earl Warren that he gave the matter no political consideration and, after his own investigation, appointed the slate as submitted.

With the exception caused by the death of one member, all those selected in 1944 are still on the job.

Three represent the timber industry—Kenneth R. Walker, a third generation lumberman, who speaks for the pine industry, Frank Reynolds, a native of Mendocino County, timber owner and former county assessor, who represents the redwood industry, and Wendell Robie, operator of a retail lumber yard and owner of livestock and timber interests, who represents timber ownership.

Three other members represent agriculture. Domingo Hardison, a

states rightist, he has a strong aversion to federal land ownership and to domination by Washington bureaucracy.

Domingo Hardison is a skilled agriculturalist and has a thoroughly broad knowledge of agriculture throughout the state. He might best be classified as a scientific farmer. As the managing engineer of a large water company, Prendergast knows the practical problems of water supply and use. He looks at water as the key to California's future and its limiting factor. Spencer has had a distinguished record of public service in the state and while directly interested in livestock, he also has a very broad view of agriculture as a whole.

Working with the board, and forming with it an effective team, are General Warren T. Hannum, state director of Natural Resources, and DeWitt Nelson, state forester. General Hannum, retired, formerly with the Corps of Engineers, is a highly competent administrator with broad knowledge and understanding. Mr. Nelson trained at Iowa State College, served with distinction in the U. S. Forest Service before coming to the state. Today he is one of the outstanding state foresters in the country.

It has been my good fortune through the years to meet and work with many public-spirited men. Never, however, have I met a group of men who have put in more time and given more willing service than these California officials and board members. Members of the State Board of Forestry, of course, are volunteer workers and are not paid for their services. But in and out of season, with scant regard to the demands of personal business, these men have always been available when needed. Such devotion to duty constitutes a remarkable example of public service.

Early in 1944, as soon as the board was organized, it tackled the tremendous problem of working out a tentative program for California. This had to be a balanced program, not alone for better forestry but for watershed protection and range improvement. Each member of the board had different ideas, and it was necessary to meet for days and weeks to work out plans. Also we had to consider well-developed public opinion which was opposed to bureaucratic control. Our program had to



Eugene Kibbe

Wooden baskets for California's citrus crops are home-grown

Santa Paula citrus grower, represents agriculture in general while J. J. Prendergast of Redlands, well-known hydraulic engineer and former state assemblyman, represents water use. A. T. Spencer, an experienced cattle and sheep man, and former president of the Wool Grower's Association, represents the livestock industry. I represent the public at large and was selected as chairman of the board.

Because it might throw additional light on the progress we have made in forestry, I would like to describe these men a little in detail. Reynolds, whose interest in the future of the redwood lumber industry runs deep, has an analytical mind, particularly as regards the place of taxation in better forestry. Walker, aviator, world traveler and big game hunter, is a very hard-headed successful lumberman who thinks in terms of economics. Robie represents timber ownership, but also has a good understanding of agriculture and water problems. A vigorous



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fit the state's political philosophy.

California's forest program does not contain many novelties. It is based on well-known and accepted principles. It has been developed by the State Board of Forestry in co-operation with experts. It has been discussed with people of many organizations. A democratic, grass roots program, it has been developed in keeping with the American traditions of free enterprise. So far as the regulatory phases of it are concerned, these are in close contact with the people directly concerned, are initiated by the timber owners and operators and are put into practice more by education than by enforcement. California's program of forestry is very broad because it includes not only items designed for better timber management, but for protection of watersheds and the improvement of the ranges to provide better and more adequate grazing for livestock. So far as is practical, all bureaucratic control is avoided.

While our tentative program included revision of state forest laws, reorganization of the State Board of Forestry, control of forest insects and diseases, range improvement, watershed management and other items, the most important and pivotal subject was a workable Forest Practice Act. Accordingly, we worked out a plan which would divide the state into four timber districts. Each district would have its local forestry committee appointed by the governor. It was proposed that these districts in cooperation with the experts of the State Division of Forestry, and in consultation with the board, would develop a satisfactory code of forest practices for their district. They would then hold hearings throughout the district on the code of practices and elections would be held. If two-thirds of the vote favored the regulations, the State Board of Forestry would then be empowered to declare them as having the force of law.

The purpose of this approach was to avoid writing into the basic laws of our state any regulations which certainly in the initial years would be highly experimental. Besides, we wanted to keep forestry as close as possible to the individual timber owner and operator. We felt that if he had a part in developing the rules, the problem of enforcement would be vastly simplified, and so it has been.

In developing this program for submittal to the timber owners and operators, we made an extensive study of the actions of previous state

boards of forestry. We found that most of the necessary measures which we were proposing had been repeatedly discussed in past years, but they had not been implemented. This appeared to be very largely because former boards apparently had felt it was their duty to impose better forestry upon the timber operators rather than sell better forestry to them. We, on the contrary, decided that our approach would be to prepare a tentative program and then submit it to timber owners and operators for discussion, for their suggestions and ultimately for the purpose of gaining their complete support.

Our course of action was made easier by the fact that the legislature the year before had authorized a Forestry Commission made up of two state senators, two assemblymen, the director of Natural Resources and the chairman of the State Board of Forestry. By holding hearings, this commission played an important part in developing ideas from different people throughout the state—also in tentatively sounding them out on proposals which we were planning to submit later as a part of our program.

Subsequently, we began holding meetings with timber owners and operators—small meetings at first, then larger ones. At the larger meetings we had represented better than seventy-five percent of the timber ownership of the state. After discussion and investigation, we were very successful in selling our program to the operators. We found them to be co-operative and progressive, and much more inclined to take part in the development of the program than we had anticipated. We found also that

they strongly favored the state taking leadership rather than federal supervision or regulation.

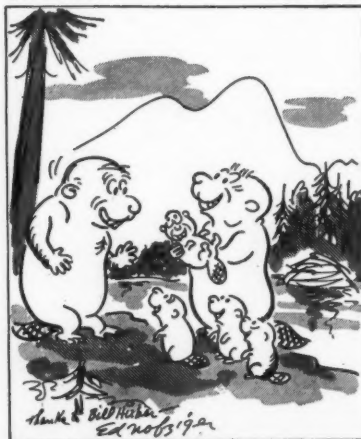
In order to avoid controversy in the discussion of details, we did not prepare laws for the consideration of the timber owners and operators. We simply discussed the ideas in general and told them that when it was time to write the laws, they would have to take the principal responsibility. We learned during the course of these meetings that previous boards had never made a practice of meeting in frank and open discussions with timber owners and operators. They had felt it their duty to enforce forestry rather than to develop it by education and cooperation.

As our meetings progressed we found that we had broken down the suspicion which had existed between the lumbermen and the state. When it came to a final vote, we received not alone passive support but unanimous and generally enthusiastic support of our program. As a final request to the timber owners and operators, we asked them to take the responsibility of sponsoring the necessary legislation for our program in the legislature. This was somewhat startling to some of the less progressive but was accepted by the majority. And so it came about that the California Forest Protective Association, which had been a protective lobby for the lumbermen for many years, became in effect California's voice for better forestry. Since then it has given valuable and consistent support to the State Board of Forestry in putting better forestry into effect.

Parenthetically, it should be noted that during this entire period no one made a greater contribution to the success of California's new forestry program than the manager of the California Forest Protective Association, William Schofield. Well grounded in his professional training, Schofield has a broad understanding of good forest management as well as the confidence of the timber owners and operators. While obviously it would be impossible to list the many people who gave noteworthy assistance, three must be mentioned. State Senator George Biggar, chairman of the Forestry Legislative Commission, gave valuable service in this capacity, and for years was the chief spokesman for forestry in the state legislature. Two men from the faculty of the School of Forestry, University of California, during this period and for many years previously, gave invaluable assistance.

"JOE BEAVER"

By Ed Nohsiger



U. S. Forest Service

"Is this the forest litter you're always talking about, Joe?"

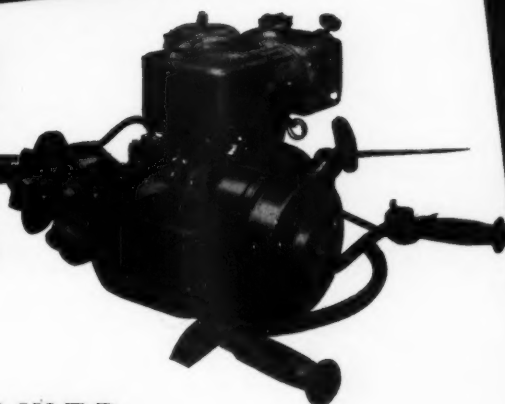
(Turn to page 44)



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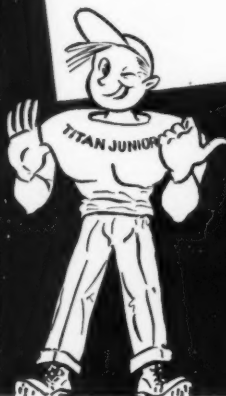
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## NEWS IN REVIEW

**Three changes** in the ranks of state foresters have been announced. In Michigan, George S. McIntire has been named to succeed Marcus Schaaf, who retired March 31 after thirty-nine years of state service. McIntire has been assistant state forester since 1929. Out in Washington, Bernard L. Orell, former assistant professor of forestry at the University of Washington, has succeeded Ted Goodyear, while down in Georgia, Ray Shirley has resigned and Guyton DeLeach, chief of fire control, is currently acting as state forester.

**A tree planting project** is under way to reforest every acre of waste land in Lee County, Alabama. The Lee County More Trees for Alabama Committee, the Opelika Rotary Club and the Chamber of Commerce have inaugurated the project and are pushing the program to success. Since late January, 250 thousand seedlings have been set out, next year the goal will be 500 thousand trees, and the following year a million trees. It is estimated 45 million trees will be needed to replant all the waste land in the county.

**Dr. Edwin C. Jahn** has been appointed to the newly established position of director of research at the New York State College of Forestry, Syracuse, according to Dean Joseph S. Illick. Dr. Jahn is a professor of forest chemistry at the college and an international authority on cellulose. In his new capacity, he will define the college's research objectives, guide programs for reaching them, and will act as liaison with other public and private research agencies and with forest operators and forest industries.

**Logging operations** in the Northwest and Rocky Mountains were so crippled by last winter's unusually heavy snowstorms that national forest income from this source fell off \$500,460 during the first quarter of this year, the U. S. Forest Service reports. Receipts for the quarter, which save for minor exceptions authorized by special acts of Congress are turned over to the Federal Treasury, amounted to \$4,844,741 as compared with \$5,345,201 for the same period last year.

**William S. Swingler** on August 1 will replace Robie M. Evans as regional forester for the U. S. Forest Service in the Northeast. Evans is retiring after thirty-nine years with the Service, the past fifteen years as regional forester for Region 7, which includes fourteen New England and Atlantic States, with headquarters at Philadelphia.

Swingler, now assistant regional forester for the Forest Service in California, has been in the Service since 1935, and was formerly assigned to the northeastern region.

**Three major forestry bills** were passed unanimously during the last session of the Georgia legislature. One bill removed the forestry division from the Conservation Department and created a five-man Forestry Commission composed of three landowners and two representatives of forest industries. Another bill provided for statewide forest fire control, while a third increased the annual appropriation for forestry from \$125,000 to \$775,000.

**Annual big-game inventory** for 1947 listed 7,758,900 animals in the United States, according to the U. S. Fish and Wildlife Service. Big-game



**W. S. Swingler** — named U. S. Regional Forester for Northeast

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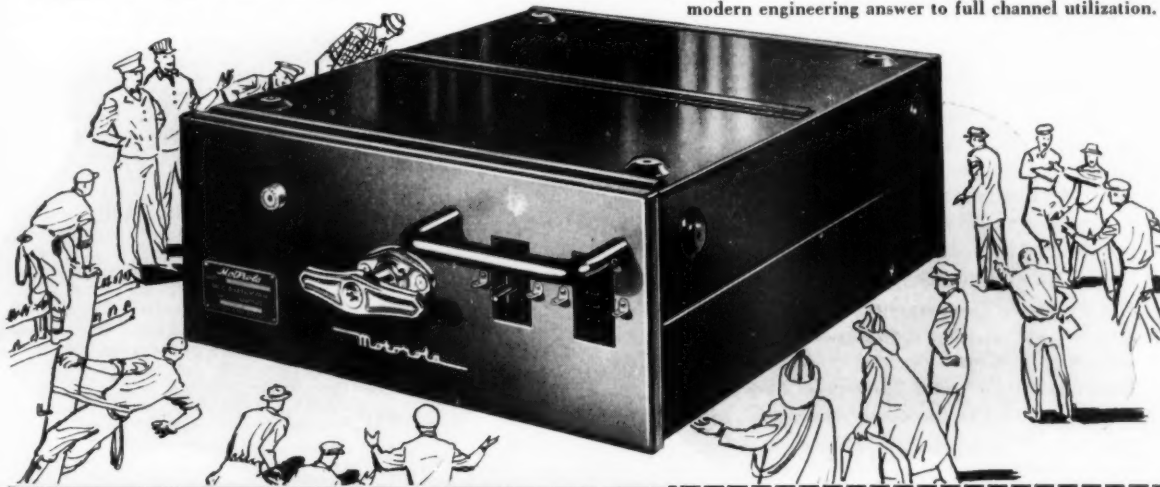
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Three of the fifteen expeditions are completed or in operation. Several others are already filled, but additional reservations are available. On closed trips you may be able to pick up a cancellation. We will do our best to include you on the expedition of your choice.

- July 12-21—Quetico-Superior Wilderness, Minnesota and Ontario—\$165
- July 16-27—Flathead-Sun River Wilderness, Montana—\$172
- July 26-August 5—Sawtooth Wilderness, Idaho—\$179
- August 3-15—Maroon Bells-Snowmass Wilderness, Colorado—\$178 (Quota Filled)
- August 9-19—Sawtooth Wilderness, Idaho—\$179
- August 15-27—Cascade Crest Wilderness, Washington—\$188
- August 18-30—Maroon Bells-Snowmass Wilderness, Colorado—\$178
- August 20-September 1—Olympic Wilderness, Washington—\$184
- August 29-September 9—Inyo-Kern Wilderness, California—\$162
- August 29-September 11—Pecos Wilderness, New Mexico—\$212 (Quota Filled)
- August 29-September 10—Cascade Crest Wilderness, Washington—\$188
- September 6-17—Great Smokies Wilderness, North Carolina and Tennessee—\$180 (Quota Filled)

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animal kill totalled 891,200.

Deer greatly outnumber all other big-game animals. White-tailed deer were estimated at 5,146,300; mule deer, 1,525,200; Columbia black-tailed deer, 427,700. Other species: elk, 194,600; prong-horned antelope, 181,200; black bear, 131,900; peccary or javelina, 100,700; moose, 17,900; mountain goat, 12,900; Rocky Mountain bighorn, 8,900; desert bighorn, 5,100; bison, 3,700; European wild boar, 2,000; grizzly bear, 811; and caribou 25 (which straggled across the Canadian border into Montana and Idaho).

Wisconsin ranked first in the 1947 big-game populations, with 902,700 animals, nearly all white-tailed deer.

## Letters

(From page 2)

trol of 57% of the commercial forest land who are not, for the most part, managing their land for continuous production. We have several hundred million acres of land now in forests that are producing only a small part of their potential capacity. The biggest waste in our national forest picture is on these timbered lands. If we could get those lands paying dividends to the owners from the practice of forestry, we wouldn't need to worry about the denuded lands. The owners would plant them in order to establish forests that they could manage because they would know that it would be a paying investment.

A. C. Cline has said in one of his Harvard Forest bulletins, "Forestry begins with the forest." Planting trees doesn't necessarily result in producing forests, but the management of existing forests offers immediate opportunity for revenue. I am not in favor of starting a big federal and state program of planting until we get the necessary woods appreciation and development of markets so as to make management of existing timber land a going concern. A big planting program can result in a big waste: waste of effort and waste of money because the planted trees in so many cases will not be taken care of. Certainly our past experience indicates that we can get a great many trees planted; but fire, grazing and neglect are still the three horsemen which ride rough shod through plantations as well as timber land. So many of the areas planted to trees never become forests capable of management. Woods appreciation brought about by forest management that pays should come ahead of large scale forest planting.

I believe in meeting the normal demand for planting stock for areas where land owners want to plant because they have learned that forestry pays and where planting will result in forests "where forestry can begin." Let's avoid planted wastes and spend most of our money on our management wastes. Too many of our existing forests are non-productive. If we succeed in management of existing woods, we will have plenty of forest products for this nation, even if all of the 73 million acres are never planted.

John F. Preston

Dickinson, Maryland

## Muskingum

(From page 23)

planted by this hill-devouring machine, as compared with 700 trees when planting is by hand. Forty-three trees in two minutes, about 1,290 an hour is the average planting rate in the row of this hillside machine.

The Muskingum tree planter will work smoothly on any hillside the tractor hauling it can negotiate. Ordinarily, the tractor starts slipping on about a 2-1 slope.

The works of the planter are compactly centered. Its two wheels straddle the terrace and are adjusted to the slope by the operator by means of levers connected with double action hydraulic pistons. These allow the operator to hoist and lower either wheel at will.

Not only does the machine do a better planting job than men (Garritt says "Men get tired, the machine doesn't"), it is also more economical. A Diesel tractor (gasoline motors have a tendency to flood on steep hillsides), a plow and a planting machine cost approximately \$6,000. The area of planting required to liquidate the first cost of equipment, through cost reduction, is 522 acres, or about two years' planting for one machine.

Survival of seedlings set out by the planter has been extraordinarily high in the district—about ninety percent—which is due in part to the excellent planting stock provided by Soil Conservation Service nurseries located on land originally acquired by the district.

Originally the district had 400 farm units, which have now been trimmed to 200 with fifty more scheduled to come out. Maximum amount of farm land will ultimately be around 12,000 acres. Tenants consist of those who pay cash rents on individual farm properties, and sharecroppers who farm the low bottomlands, miles and miles of which may be seen in the vicinity of Mohawk Dam.

Agricultural income from the district last year was \$100,000, including revenue from improvement cutting. This cutting, incidentally, pays for reforestation and development of new types of machinery. It has been profitable mainly because of advanced methods plus the fact that some old-growth timber still remains in ravines and other areas previously inaccessible.

This, then, is the basic structure of the Muskingum Watershed Conservancy District—the small staff of

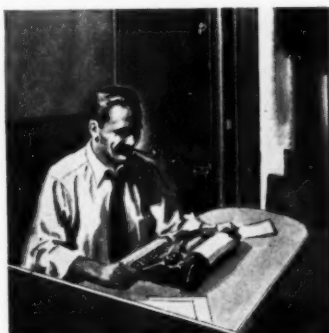
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H. Sengstacken, Passenger Traffic Manager, Union Station, Chicago 6, Ill.



**THE RUFFED GROUSE—LIFE HISTORY, PROPAGATION AND MANAGEMENT**, by Gardiner Bump, Robert W. Darrow, Frank C. Edminster and Walter F. Crissey. Published by the New York State Conservation Department, Albany, New York. 915 pages, illus. Price \$10.

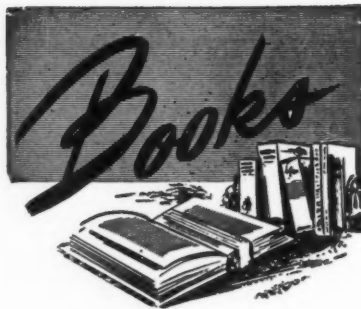
Winner of a recent award by the Wildlife Society, this voluminous work is the most complete study of the ruffed grouse in New York ever compiled. The result of the Ruffed Grouse Investigation launched in 1930, it is certain to make a permanent and important niche for itself in the nation's wildlife literature.

This investigation has been noteworthy in a number of aspects. It represents the most sustained and comprehensive effort ever made to study any one form of American wildlife. In addition to providing a myriad of facts and figures relative to the ruffed grouse the investigation has had a number of valuable by-products. These include the development of wildlife techniques, practices and policies from the application of which the state of New York has already had substantial benefits. Probably one of the most valuable by-products has come from the employment of the investigation as a training ground for young wildlife workers.

The pictorial presentation is worthy of special notice including four paintings in full color by Fred Everett and 127 sketches by Mr. Everett and Clayton B. Seagears. Copies of this book may be purchased by writing the Division of Conservation Education, New York State Conservation Department, Albany 7, New York.

**ALONG YOSEMITE TRAILS**, by Josef Muench. Published by Hastings House, 41 East 50th Street, New York 22, New York. 104 pages, illus. Price \$2.75.

Many writers groping for the right words to describe the grandeur of Yosemite National Park, have been haunted by a feeling of inadequacy. Mr. Muench doesn't rely on word imagery to do the trick. He does it with pictures—120 superb camera studies reproduced in gravure. And he succeeds where others have failed for this little book is a striking camera chronicle of Yosemite with its forests, lakes, mountain peaks, granite domes and monoliths, trout streams, glaciers and high mountain meadows. Five great waterfalls that plunge over perpendicular cliffs as high as 1,612 feet have been captured by this cam-



era artist and reproduced with startling effectiveness. Next to actually going to Yosemite, this book of pictures is the best thing.

**THE PRONGHORN ANTELOPE AND ITS MANAGEMENT**, by Arthur S. Einarsen. Published by the Wildlife Management Institute, 822 Investment Building, Washington 5, D. C., 235 pages, illus. Price \$4.

This series of vignettes on the elusive pronghorn slows down this sixty-mile-an-hour wildling to slow motion for the reader—providing an opportunity to study the lightfoot at close range. Though scattered widely throughout the West, this fleet animal may be facing the end of the trail because so few people are aware of its problems of survival. Mr. Einarsen's painstaking study sets the standard for the wise and thrifty use of this singular wild game species, showing clearly that by sound management techniques and restraint, the pronghorn can again reoccupy much of its former range. The book is written in a readable style and the photographs and drawings are good—especially the camera closeups of pronghorn kids.

**THE EARTH'S GREEN CARPET**, by Louise E. Howard. Published by Rodale Press, Emmaus, Pennsylvania. 258 pages. Price \$3.

The main theme of this book is the danger to the national health of using chemical fertilizer on the land and the importance of a reformed agriculture. It is a short popular account by Mrs. Howard of the ideas that inspired the work of her husband, Sir Albert Howard, formerly director of the Institute of Plant Industry, Indore, and agricultural advisor to states in Central India and Rajputana. Nothing in nature's green carpet is thrown away, the writer states. Nothing is discarded. There is a regular and uninterrupted cycle which never stops. Nature, Mrs. Howard states, practices complete continuity and complete conservation.

**FORESTRY AND WOODLAND LIFE**, by H. L. Edlin. Published by B. T. Batsford, Ltd., 122 East 55th Street, New York 22, New York. 180 pages, illus. Price \$4.50.

This book is a description of the science and craft of tending woodlands as at present practiced in Great Britain. The first eleven chapters are devoted to the natural growth of trees and the influence of soil, climate and wild plants and creatures of all kinds upon the forest. The subsequent chapters take up the story of man's influence on the forest with each subject dealt with from the standpoint of the British forester. Although British forestry owes much to German origins, Mr. Edlin states it is now reaching the stage where it may base its theories on the practice of its native land. "Too many of the existing textbooks draw their inspiration from foreign methods which, however effective they may be abroad, have little practical application under the very different climate, rural economy and general conditions of the British Isles," Mr. Edlin declares.

**HUNTING, FISHING AND CAMPING**, by L. L. Bean. Published by L. L. Bean, Inc., Freeport, Maine. 104 pages, illus. Price \$1.

This book provides a storehouse of definite information on how to hunt, fish and camp. While it deals with conditions in Maine, the same instructions and rules apply to all sections of the country where the same fish and game are found. The practical value of the book is emphasized by the fact that it is now in its seventh printing. The author has thoughtfully repeated chapters on how to dress and hang up a deer, signals for hunters, how to use a compass, and how to find a lost hunter, as a supplement. These may be cut out and carried by the sportsman in the woods.

**BIRDS OVER AMERICA**, by Roger Tory Peterson. Published by Dodd, Mead & Company, Inc., 432 Fourth Avenue, New York 16, New York. 342 pages, illus. Price \$6.

For many years Roger Tory Peterson, author of the famous *Field Guides* and one of this country's most brilliant ornithologists, has been observing and photographing birds in every part of the country. Now he has set down these unique adventures and observations in the most important and exciting bird book of our times. He has included eighty pages of his choicest bird photographs.



**SHRUBS AND VINES FOR AMERICAN GARDENS**, by Donald Wyman. Published by the Macmillan Company, 60 Fifth Avenue, New York, N. Y. 442 pages, illus. Price \$7.50.

Donald Wyman, a horticulturist for Harvard University's Arnold Arboretum for the past thirteen years, has compiled a practical and authoritative guide to the selection of better types of shrubs and vines which can be grown in the various climatic zones of the United States and Canada. Home gardeners, nurserymen and landscape architects all will find answers to their problems within these pages, for Mr. Wyman has evaluated some 3,200 species and varieties of shrubs and vines as to their usefulness, hardiness and general characteristics.

**GARDEN FACTS AND FANCIES**, by Alfred Carl Hottes. Published by Dodd, Mead & Company, 432 Fourth Avenue, New York, N. Y. 370 pages, illus. Price \$4.

Departing from a strictly practical treatment of his information on home gardening, the author has written an enjoyable and inspiring book on fascinating legends, humor, favorite tributes, prayers, superstitions and pages of odd facts and fancies relating to gardening.

**BEGINNER'S GUIDE TO SEASHORE LIFE**, by Leon A. Hausman. Published by G. P. Putnam's Sons, 2 West 45th Street, New York, N. Y. 128 pages, illus. Price \$2.

This guide is written for those who want to know more about the many strange objects found on the beach and in the shallows of the seashore between the tides. It contains over 250 of the most common forms of animal life found on the east and west coasts of the United States and Canada. It is a handy reference to the little known world of starfishes, sponges, corals and other sea life.

**NEWSPRINT PAPER IN NORTH AMERICA**, by Royal S. Kellogg. Published by The Newsprint Service Bureau, 342 Madison Avenue, New York, N. Y. 92 pages with charts and tables. Price \$15.

This is a thorough analysis of the newsprint paper situation on the North American continent. It is complete with definitions, capacity of the industry, production, consumption, prices, cost of making newsprint, timber supply, international trade and world figures. Its charts and tables present information on all phases of newsprint—past, present and future trends.

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## Colorado River

(From page 25)

river, the dragon river which made each day a torment, which left them bruised and dripping and shaken with a grim anxiety. Then they would stop their talk for a while and listen.

What was that strange persistent roar downstream? Was it somehow different from that of the previous night? Some of the men thought it was. They would listen again while the fire crackled and flickered on the canyon walls. Yes, that sound was different—it was a falls!

Powell would cock his ear and listen. He didn't like that talk about a falls. It was too demoralizing. It was the one big fear they all had—that around some treacherous bend in the river where the water raced and foamed, they would come suddenly upon the dizzy brink of a spilling cataract that fell into a roaring whirlpool many feet below. The major would gruffly say no, it wasn't a falls. He wasn't too sure, but he didn't want them to talk about it.

At other times the men would listen and wonder about the weird tales they had heard from miners, trappers and barroom hangers-on back in Green River City. Were there great caves through which the river flowed? Were there long underground passages or tunnels into which their boats would be hurled like spinning driftwood? There in the darkness and the horrible gloom would they all be smashed and drowned in the black foam? The major turned the talk abruptly to memories of the Civil War.

During the course of the expedition four men did leave the party. On July 5, Frank Goodman, whose boat had been smashed in two on one of the upper rapids of the river, said he had seen danger enough. On August 28, the two Howland brothers and Dunn, the hunter and trapper, decided to scale the cliffs and try for the Mormon settlements to the east. They never reached them. Mistaken for some drunken miners who had killed a squaw, they were ambushed by the Shewits Indians and shot full of arrows as they stopped at a spring.

By August 13, when the boats were ready to enter the great unknown, the Grand Canyon, the men had another source of worry. Their food was getting scarce. With the constant ducking and wetting, the flour was mouldy and musty. They had to throw away large amounts of it. They boiled their bacon; the sugar



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melted and ran down the river. Of the ten months' supply of food they had barely enough to last one month when they reached the opening gorges of the Grand Canyon in Arizona. They laughed and joked about it, but even the major had to admit, "the cheer is sombre and the jests are ghastly."

At noon they sweltered in the fierce heat of the inner gorge. At night they shivered. Not a single man had a complete suit of clothes left; their ponchos and rubber coverings were rotted and ruined. They found an Indian garden at the mouth of one of the smaller canyons leading into the main gorge and they feasted on squash. Several times Major Powell noted the remains of cliff dwellers in the Canyon. He saw their meal-stones where they had ground

their flour and the rubble of walls and houses, all quite silent.

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## Arctic Land of Plenty

(From page 15)

Paul said. "Up here they're in the berry patches. Salmon can't come over the big falls on Boulder Creek, and since the stream freezes solid in winter, there are no trout. We'll see only grizzlies and browns. The blacks are further down, between us and the river."

We climbed for an hour before the mountain flattened out into a narrow saddle. Up here the slope was covered with low-growing huckleberries. In spots they were so thick that the ground was blue. I stripped a handful off the stunted bushes. They were more acid than sweet.

We left our horses in the saddle and climbed a sharp pinnacle to look the country over with our glasses. Paul pointed out a band of Dall sheep across the valley and another on the same side of the creek to the north, grazing around the edge of an enormous rock slide. Two thousand feet above us, across the canyon, two rams were lying against a cliff. The rock shelf supporting them was not more than twenty feet wide. The sheer wall above, below and on both sides protected them for 1,000 yards in every direction.

"They're small, anyway," Paul said.

Just at that moment, though, I was more interested in the country itself than in the game. Not so long ago, as geological eons went, a wall of glacial ice had marched across this land, grinding mountain ranges into dust under its heel. Only a few thousand years ago the ice cap had receded, leaving the earth barren of

all life. But the wilderness creatures are a tenacious lot. They were tracking the glacier back to its lair, moving slowly and steadily to cover the world once more with an emerald coat, bringing in new life for that which had been driven southward or destroyed.

All the way from Mattanuska Valley I had watched this blanket of vegetation in its varying stages. In the valleys the forests had been dense and the trees large. A couple of thousand feet higher the trees straggled and alder and willow brush predominated. These walked out into irregular patches and left the earth to its carpet of huckleberries and reindeer moss.

Where Paul and I sat the berries were gone and the moss battled valiantly with the drought and the cold. Further above us the earth was barren of all vegetation, except small patches of scrubby grass that fed the goats and sheep. Some of the mountains were solid stone. Others were veneered with dirt, several inches to several feet thick. Periodic rains kept the streams in this part of Alaska roiled and muddy.

The moss formed the bulk of the caribou's diet. Nature had even developed an antler that extended out over the caribou's nose. He used this as a shovel to push snow out of the way to feed on the moss underneath. I tasted a sprig of the gray reindeer moss. Its flavor was that of uncooked mushrooms.

"It has enough nourishment to keep a man alive," Paul told me. "I

lived on it once for a week when I ran out of food and didn't lose more than a few pounds."

"We climbed back down the promontory to our horses. They were grazing contentedly where we had left them.

"We're going into rough country," Paul said. "We can't ride these plugs, and there's no need to drag them along. They'll stay here, unless a grizzly runs them off."

He pointed out a pocket at the head of the canyon. It was several square miles in size and shut in on three sides by a wall of mountains. From the pinnacle where we first observed it, the pocket had looked as flat as the carpet in a church aisle. We found it bisected by rocky gulches, a thousand yards from rim to rim and as deep as they were wide.

"This is the country where we'll find our caribou," Paul promised.

We climbed laboriously, hunting out these deep draws as we went. In spite of the cold wind, the vertical slopes and altitude set my lungs afire and I lay on my face, gulping at the thin air. Once when we paused to rest, Paul pointed out a track in the soft earth. It had the shape of a big collie's pad.

"Wolf," said the guide, softly.

I had heard about these great white wolves of the arctic and a chill bristled at the base of my spine. Charlie Gillham, biologist for the Alaska Game Commission, had told me that in spite of the bounty on wolves, the huge animals were increasing and in some localities taking a heavy toll of wild sheep. That was entirely credible when we sat in the office of the Game Commission, and when I had examined a pack of wolf skins ranging from almost black to satin white. But after climbing all day to sheep range and looking out over the sheer walls and slopes where the Dall sheep lived, I formed the personal impression that the Arctic wolves could find easier meat.

"The packs are not as large or vicious as they once were," Paul said, grimly, "but they're still around and they do some damage to the lambs and caribou calves. If they get hungry enough, they'll still tackle a man."

I agreed that in this wild upland, anything was possible.

Half way up one of the bisecting canyons Paul spotted a white sheep standing in a gap between two peaks. It was closer than I had been to one of the rare animals and I put up my glasses for a detailed look.

"Small ram?" I asked.

"Nope," the guide corrected me, "it's a ewe. They have horns, too, but not as large as the rams. There's a lamb with her."

I shifted the glasses and found a small edition of the ewe, standing tight against the rock wall. Then they both turned and went out of sight beyond the gap.

We crawled to the next dizzy crest and paused to rest. For the first time I looked back. For a moment the sight left me speechless. This was a vastly different world from the one in the valley. It was old and wrinkled and brown and gray. The mountain peaks which had towered over us as gigantic walls, were dwarfed. Beyond them were mountains and more mountains, standing on end, stupendous upheavals beyond comprehension of feeble human brain. I had worked and hunted from one end to the other of the Rocky Mountains in the states, and had never seen a sight like this. Paul expressed my wonder in a few simple words.

"It's a world being made."

We struggled on. At 7,000 feet or more in elevation, the rim around the pocket still towered above us. The air was like a knife against my cheek. We paused on a new rim where I was trying to get my breath and Paul nudged me gently against the shoulder.

"To the right," he whispered. "Couple hundred yards."

Almost within rock throwing distance stood a magnificent animal with a huge rack of antlers. His coat was brown except for the silver cape around his neck and a white rump patch. It was the first caribou I had ever seen.

The animal had not spotted or winded us. He was grazing calmly, burying his head in the white moss, raising it high at an angle to look around and then burying it again.

"He's a beauty," Paul whispered. "Want him?"

"Not yet," I breathed. "Let's look at him first. There's plenty of time."

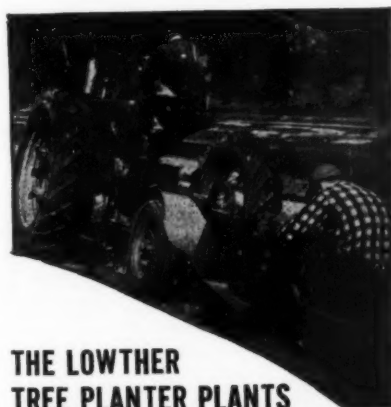
I wanted to feel this picture, to taste it slowly, to wrap it up in the solitude, the rawness, the primitive intensity of this wild land.

"Can we get closer for a picture?" I asked.

He cut me sharply with his eyes.

"We'll try."

We slid away from the rim and crawled a hundred yards under the high top. I adjusted my camera, slid the rifle strap over my shoulder and we wormed our way back to the top. For a long minute we studied



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the slope, unbelievably. The caribou was gone. He had vanished as completely as if the canyon had opened and swallowed him.

"I'll be doggoned," Paul muttered. "He was right there, by that rock."

A rattle of stones on the cliff brought us both up, sharply. At the top of the slide a band of white sheep filed in a line toward the rim of the valley.

"Those falling rocks scared him or he winded us," the guide said. "But he sure spooked out of here."

For the remainder of the day we looked out the valley, but my reindeer was gone. It was late afternoon when we climbed down to our horses and twilight when we followed the

wide creek bottom back to camp. Paul could not hide his disappointment at my stupidity for wanting a picture when we had meat so close to the table and a fine rack within rifle range. But I was as elated as he was depressed. It was one of the finest days I had ever spent on the trail. The country was full of game and this was by no means the last chance we would have. And somehow the daylight hours had been as full and complete as it was possible for them to be. As the last gold light touched the peaks above us, I remembered what Max Wilde, one of the great western guides, had once told me.

"When you kill," he said, "the fun of hunting is over."

## Forestry By the People

(From page 32)

able service. They were Dean Emeritus Walter Mulford and Professor Emanuel Fritz. Never too busy to step in and work, they gave time, thought and effort unsparingly.

For many years there had been a growing interest in California forestry, the result of continued educational work. All of our principal chambers of commerce, business organizations, financial organizations and agricultural groups favored better forestry. Accordingly, with their backing and with that of the lumbermen's organization, we went to the legislature with a situation never before experienced. Our entire program went through with hardly a vote cast against it.

During this same period and pursuant to the legislation adopted, many important steps were taken. First, the State Board of Forestry itself was reorganized. Instead of its members being appointed and dismissed at the pleasure of the governor, they are now appointed by the governor for four-year staggered terms and confirmed by the senate. This assures more continuity of policy. Then the board, as one of its functions, developed new and closer ties with the Forestry School of the University of California, which has been of tremendous importance in the development of a technically-sound program.

Ever since the advent of the white man, one of the great problems in California has been wild fire. Many people believe in the benefit of burning brush and the use of fire has been recognized as one means of improving ranges. However, tremendous damage has been done through the years by the indiscriminate use of fire. The State Board of Forestry

recognizes that fire can be used as a tool, but believes that range improvement must consist not alone of burning but upon proper regulation of grazing, the re-seeding of grasses when required, and upon a subsequent removal of brush sprouts by another burning, by grubbing, or by grazing of sheep or goats. In other words, we believe in range management and improvement rather than in the indiscriminate use of fire.

There had been serious conflicts between previous boards of forestry and some livestock interests and organizations. We decided that it was necessary to adopt the cooperative approach and, accordingly, after considerable negotiations, we have succeeded in getting the cooperation of the livestock groups in the state through the development of a Range Advisory Committee. This committee is made up of representatives of the Cattlemen's Association, the Wool Grower's Association, the California Farm Bureau Federation, the California Protective Association and the College of Agriculture of the University of California. There are fifteen men on the committee who meet with the board from time to time to discuss various aspects of range improvement. It has been a means of developing better understanding and we believe it will result in great progress to range improvement in California.

For twenty years previous to 1944, the damage caused by insects and diseases to California's forests was greater than that caused by fire. Few realized this. Control was largely neglected. An insect control act had been passed by the legislature. It required that every timber owner be



served as in a lawsuit—that costs of control on his property be paid or a lien filed thereon. The process was slow, clumsy and expensive, and thoroughly disliked.

The State Board of Forestry planned and put into operation a new and workable act. Under this procedure the infested area is defined and declared. The principle of public interest is recognized and the board is authorized to set the ratios of public and private contribution. When this is done, the timber owners in the infested area are called upon to put up their share in cash. Control work is under the supervision of the state.

The Forest Practices Act is working out very well. It is administered on a "live and let live" policy. The "Forest Practice Rules" had been set up on more or less a minimum basis—but on a basis which we believe will be sufficient to secure the regeneration of our forests. The regulations of the different districts vary in some details, but all require the leaving of a proper number of seed trees, and that trees below certain diameters, in most of the regions twenty inches, be left for further growth. Of course, some of our better operators on the large properties far exceed the requirements of these rules.

The rules also cover such other subjects as handling of slash, sawmill waste and the fire protection generally required in logging and mill operations.

Noteworthy in the Forest Practice Act is the procedure permitting alternate plans of management. Such plans, if recommended by the local forest practice committee, and approved by the State Board of Forestry, have the force of law and are accepted in lieu of compliance. These are of many types. Some are for large operators who, in general, far exceed the rules but who object to some detail as inconsistent with their operations. Others provide for the production of special products or for unusual local conditions. Still others are designed to prevent hardship. For instance, the board has on occasion accepted other fire protection in lieu of the regularly required sawmill waste burner where the mill in question had only a short period left to operate.

These alternate plans, of course, come to the State Board of Forestry from the local forest practice committee and the board has the option of accepting or not accepting, as it sees fit. We feel, however, that they have been a means of popularizing better practice in the woods and that they have built up a great deal of

goodwill for the State Division of Forestry and the State Board of Forestry. Even more important, the use of alternate plans permits an unusual degree of elasticity and individuality in the development of good forestry.

The effectuation of the forest practice rules is progressing at a reasonable rate and with a minimum of friction. We are leaning heavily on education and persuasion. Our technicians spend time and effort trying to persuade the operator that good forestry pays. We use the services of our forest practice committees because they are made up of men who stand well in their respective areas. And we believe that we are getting very good cooperation and reasonably good enforcement with a minimum of compulsion. However, as time goes on, it will undoubtedly be necessary for us to adopt stronger measures to assure reasonably complete compliance.

As evidence that education does get results, we find that some of our best operators are now talking of raising standards, making the rules more strict and putting more pressure on compliance.

We are currently working on a project in cooperation with the California Forest and Range Experiment Station, a federal institution, to develop comprehensive and fairly complete information on California's forest resources. We are making an accurate vegetative and soils survey of the important timber areas. The work is progressing well and it should be complete within the next three or four years.

While all fire-fighting organizations have shown a fine spirit of cooperation for many years, the effectiveness of their team work has developed much in the last several years.

One of the greatest problems facing us today is the importance of what might be termed "conservation" education. We have many people in California who have come into the state within the last few years, precisely more than forty-six percent increase since 1941. They do not know the tremendous danger of fire, the harm that it can cause to forests or to watersheds. It is a problem to educate these people so that they will not set fires by carelessness. In this campaign we are enlisting cooperation from every type of organization.

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are not solved but the state has accepted the challenge and has set to work upon a well-integrated plan for the better management of forest and watershed resources. Definitely it is factual to state that more has been accomplished in the last five years than in the preceding twenty-five.

## Miracle of Muskingum

(From page 37)

coordinators who hold overhead to a minimum, and the specialists from the SCS, the Army Engineers, the Ohio State Fish and Game Commission which pays a flat rate for the use of the lakes for fishing purposes, and others—a total of ten. The fact that the district is a going concern is also due in large measure to the support of such pioneering exponents of sensible land use as Louis Bromfield at Malabar Farm, and Cosmos Bluebaugh at Danville, and dozens of other "live" farmers and professional and business men.

For Muskingum valley people are really sold on their district. Any doubts entertained regarding the importance of this great flood control project vanished in thin air in June of 1947 when threatening flood waters, the greatest since the dismal days of 1913, came surging down Muskingum stream beds once again. In the old days, Zanesville and numerous other communities would have been wallowing in water. But not any more. With the engineers in complete control, the water was diverted into the big reservoirs until fifty percent of the storage space was utilized. A lesser threat in March of 1945 was handled with similar dispatch with the water impounded behind the big dams. And Zanesville and all the other towns kept dry.

Asked for the formula for the district's success, Bryce C. Browning, its secretary-treasurer, replied, "Well, having a plan and knowing what we wanted might be the answer." But not to be minimized is the youthful, progressive approach of the men who shape up this program—men who are

Rapid strides have been made because the people have been informed. They have been consulted in proposed remedial action. A democratic and grass roots approach has been used.

This is forestry by the people. It is getting results.

breathing new life into once decadent and shabby land. Even the chestnut trees are beginning to come back and characteristically, Forester Garritt says enthusiastically, "You know, I think they may make it, too."

Enthusiasm for the job plus resourcefulness might be said to be the trademark of the district staff. It draws high caliber people to its banner. One recruit, Wes Manley, quit his job with the Federal Reserve bank in Cleveland to run the boat concession at Piedmont Lake.

With the emphasis on reforestation and improvement of existing woodlands there appears to be little doubt that lumbering will be a major economic factor in the district in a decade or more with the possibility that the area may ultimately have as much as \$20,000,000 in standing assets.

The other big source of income will, of course, be recreation and one suspects the current program under the direction of Chief Engineer J. S. Gena and Recreation Manager H. S. Crass, will only give it a good start. There is evidence that state publicity officials are tiring of receiving such telegrams as the one received last year from Idaho's travel promotion department: "Our thanks to Ohio. Every other car on the road bears an Ohio tag. Keep 'em coming."

But not if the state can help it. This year Ohio papers are carrying advertisements urging the 7,650,000 Ohioans to "Stay in Your Own Backyard, See Beautiful Ohio."

Once they really get acquainted with this pleasant land o' lakes the chances are they will.

## AUTHORS

NORT BASER (*Getting on the Contour*), prior to becoming an assistant editor of *American Forests*, was editor of the *Texas Forest News*. JAMES B. CRAIG (*The Miracle of Muskingum*) came from the newspaper field to the staff of *American Forests* as an assistant editor. MARK HANNA (*He Tamed the Colorado*), California writer, was formerly ranger-naturalist at the Grand Canyon National Park. CHARLES ELLIOTT (*Arctic Land of Plenty*) is a well-known outdoor writer and former State Game Commissioner of Georgia.

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**OCTOBER 12**—field trip through Ohio's beautiful Muskingum Watershed Conservancy District with stops to see strip mining reclamation, reforestation, lakes, watershed and recreation management. Annual banquet and stop over in evening at Akron.

**OCTOBER 13**—trip to Louis Bromfield's Malabar Farm. Alternate trips to arboretum at Wooster, or soil conservation research station at Coshocton.

**REGISTER NOW** by writing Homer Fish, Chairman of Housing Committee, Oglebay Park, Wheeling, if you plan to attend the entire meeting. If you can only attend the last two days in Ohio, registrations may be made with Akron Convention Bureau.

**THIS MEETING** is planned for your enjoyment and convenience, an opportunity to see your friends again.

**American Forest Fire Medal** Award was made to James W. Simons of California, in fitting ceremonies at the Department of Agriculture and the White House on May 17. AFA is trustee of the medal, awarded through a selected board of cooperating organizations. Full story is on page 16 of this issue.

**A month's mail** brings letters and news of interesting accomplishments of AFA members around the country. We congratulate:

**Dr. George A. Garratt**, dean of the Yale School of Forestry, for his appointment to the Connecticut Park and Forest Commission.

**Dr. Raphael Zon**, of St. Paul, Minnesota, for his appointment as honorary president of the Seventh International Botanical Congress to be held in Stockholm in 1950.

**James G. K. McClure**, president, Farmers Federation of Asheville, North Carolina, former AFA president, for his appointment as a member of the National Citizens Commission for the Public Schools—hailed by Dr. James B. Conant, president of Harvard University, as "potentially the most important move for the advancement of public education taken in the last fifty years."

**William Vogt**, chief, Conservation Section of the Pan American

Union, an honorary vice-president of the AFA, recipient of the Izaak Walton League's new "Original 54" award this month for his book *Road to Survival*.

**W. W. Morris**, of Madison, Wisconsin, AFA member for over forty years, who writes: "I have enjoyed The American Forestry Association Magazine for about forty years and have recommended it to many young forestry and conservation students as well as friends. I have also used many articles in it for writing and radio talks. I have always considered it a fine, non-technical magazine which people can read and enjoy."

**W. Goodrich Jones**, of Waco, revered as the "father of forestry in Texas." In 1914 he organized the Texas Forestry Association, served as its first president and led the fight to create a Texas Forest Service established by the legislature in 1915. This May he was honored by Texas forestry leaders by the naming of the W. Goodrich Jones State Forest near Conroe.

**Miss Ethel L. Larsen**, chairman, Conservation of Natural Resources Committee of the General Federation of Women's Clubs, an honorary vice-president of the AFA, writes that she has just completed a tour of ten states boosting better forestry. She reports

extensive use of reprints from *American Forests* covering forestry conditions in individual states. Miss Larsen says that the General Federation of Women's Clubs recently adopted a resolution calling for action on the rehabilitation of valuable watershed lands. She has another schedule of speaking engagements for New England this fall to carry her message of conservation to women's clubs in that section.

**Teaching Conservation**, AFA's most recent book, is getting before more and more teachers. Typical response is this one from Byron K. Barton of the Eastern Illinois State College. He writes: "*Teaching Conservation*, by Ward P. Beard, fills a gap which has long existed in the conservation education program of this country. I have asked our campus bookstore to order thirty copies for use in our summer courses."

**AFA Board's** newly approved Conservation Awards Committee was set up this month with the appointment of Walter C. Gumbel of Fairmont, West Virginia, as chairman. The committee will study and recommend awards to individuals for outstanding work in various fields of conservation including community development, industry, private organizations, individual land owners, news, radio and legislation. The committee will welcome nominations from AFA members. Awards will be made at the annual meeting of the Association.

S. L. F.

## Pioneer



**W. GOODRICH JONES** — "father of forestry in Texas" was honored in May



# EDITORIAL

## The People Take Over in Muskingum Valley

By OVID BUTLER

In these days of great and multitudinous schemes to extract from the federal treasury large sums of money for local spending under the guise of conservation and flood control, it is heartening and refreshing to take a new look, as James B. Craig has done on page 18 of this issue, into the Muskingum Valley of Ohio. Here in a drainage area embracing around 8,000 square miles, the people are doing their own conservation job in their own enlightened way.

It is especially refreshing to see that they are doing this without increasing their own tax burdens and without annual drains upon the federal treasury. The success of their self efforts is attested not alone by the changed aspect of the lands and the social and economic climate of the valley, but by the fact that visitors from all over the world come to study and take a leaf from the plans and methods by which an agricultural and industrial community of eighteen counties is shouldering its own conservation problems.

That the Muskingum Watershed Conservancy District is carrying through its undertaking so successfully on democratic principles poses a difficult answer for those groups and interests that would exploit to the breaking point the theory that only the federal government, by virtue of its power to tax and borrow, is in a position to initiate and develop large conservation works of local or regional scope.

This comment might be set down as an overstatement were it not that the Muskingum project speaks for itself in terms of on-the-ground accomplishments. Years of persistent work and unwavering adherence to plans made by the people of the valley stand back of improvements one sees as he travels the upper watershed of the conservancy district, for the project is by no means a newcomer into the American scene of land rehabilitation. Its genesis dates back more than thirty-five years to 1913 when a group of Ohio citizens, aroused by the great flood of that year dedicated themselves to long range action to banish the recurrent menace of floods from the Miami Valley.

One of their first steps was to bring about the passage by the state legislature of the Ohio Conservancy Act making possible the organization of conservancy districts within the state, each district being empowered to construct, maintain

and administer flood control and conservation works. Proceeding under the Act, the Miami Conservancy District was established as a local agency of government for mutual and co-ordinated action on the part of the people, several millions of dollars were raised by public subscription and the work of flood control began. For thirty-five years the Miami Valley has been free from disastrous floods.

The Muskingum project, although initiated some years later, is a corollary of the local initiative and "do it ourselves" spirit which characterized the citizen leaders of the Miami Valley. As in that district, the first objective was the control of floods which were robbing the valley of its fertile soils and periodically spreading destruction and human misery along its waterways. But the framers of the Muskingum project had to deal with a larger area and they envisioned a program of broader scope. Flood control was to be the first step but it was to be accompanied and followed by other conservation works that would enrich for human use and enjoyment the areas freed from the hazards of raging waters.

Theirs was a bold and challenging concept of public self service and one that called for patient leadership, faith in the valley people and the pioneer's determination to overcome all difficulties. All these, the project leaders have ably shown. The undertaking has now come of age. Twenty-two years have passed since it was launched and as pointed out by Mr. Craig its pattern of local action and control with state and federal cooperation stands out as a corner foundation of its success. Certainly one will travel far in this or any other country to find a more impressive demonstration of what can be accomplished by local conservation initiative, leadership and cooperation.

There are many guide posts in the Muskingum Valley for other American communities whose people cherish home rule and whose natural resources are seeping out. And there is inspiration too in the valley scene, not the least of which comes from the vista it opens of new American frontiers to be won.

Most of us are given to honoring our pioneer forefathers who fought their ways westward from one wilderness frontier to another until they came to the peaceful waters of the Pacific. Theirs was a one-way trip of national development. The day for the return trip is now overdue. It likewise will be a hard and long journey and will call for the same spirit of personal initiative and determination that dominated the pioneers of old. We like to think of the Muskingum District as blazing the trail to this new and greater development of our native land.

# DISASTER!

The continuing scourge of forest fires in the United States is nothing short of disaster. Look what forest fires do EACH YEAR!



Each year they burn 30 million acres of land—an area the size of the State of New York!



They destroy enough trees of saw-timber size to build 86,000 five-room homes!



They burn enough pulp-size trees to make 3 million tons of newsprint, 90 million railroad ties!



They cause soil erosion, tremendous loss of recreational areas, wildlife, electrical power!



## FOREST FIRES **CAN BE PREVENTED** IF **YOU WILL FOLLOW—FAITHFULLY—THESE FOUR SIMPLE RULES**

1. Hold your match 'til it's cold — then pinch it to make sure.
2. Crush out your cigarette, cigar, pipe ashes. Use an ash tray!
3. Drown your campfire, then stir and drown again.
4. Ask about the law before burning grass, brush, fence rows, or trash.

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